

## **A review of the species of *Baeocera* Erichson (Coleoptera, Staphylinidae, Scaphidiinae) of America north of Mexico**

Ivan LÖBL\* & Karl STEPHAN\*\*

\* Muséum d'Histoire naturelle, Case postale 6434, 1211 Genève 6, Switzerland.

\*\*Rt. 1, Post Box 913, Red Oak, OK 74563, USA.

**A review of the species of *Baeocera* Erichson (Coleoptera, Staphylinidae, Scaphidiinae) of America north of Mexico.** - The species of the genus *Baeocera* of America north of Mexico are reviewed. Diagnostic characters and figures are given for all 38 species recognized. The following new species are described: *Baeocera amicula*, *B. borealis*, *B. chisosa*, *B. compacta*, *B. elongata*, *B. hamata*, *B. hesperia*, *B. impunctata*, *B. indistincta*, *B. lenczyi*, *B. obesa*, *B. pecki*, *B. similis*, *B. solida*, and *B. stricta*. *Baeocera dybasi* (Cornell) is placed in synonymy with *B. texana* Casey, and *B. kingsolveri* (Cornell) with *B. robustula* Casey. *Baeocera speculifer* Casey and *B. youngi* (Cornell) are removed from synonymy and treated as valid species. Lectotypes are designated for *B. robustula* Casey, *B. rubriventris* Casey, *B. speculifer* Casey and *B. texana* Casey. Species groups, based on male genitalia characters, are defined, and a key to species is provided.

**Key-words:** Coleoptera - Staphylinidae - Scaphidiinae - *Baeocera* - taxonomy.

## **INTRODUCTION**

*Baeocera* Erichson is one of the more diverse genera of scaphidiine beetles consisting of approximately 180 species with a cosmopolitan distribution. Members of the genus are commonly encountered in samples from moist forest floor litter, on fungi, and, more recently, in flight intercept traps. Little is known about their biology. They apparently feed on slime molds (CORNELL, 1967; LAWRENCE & NEWTON, 1980; NEWTON, 1984; NEWTON & STEPHENSON, 1990) and on sporophores of basidiomycete fungi (NEWTON, 1984). The most recent account on scaphidiine larvae was given by NEWTON (1991); it also includes information on *Baeocera* life history.

Although the Nearctic *Baeocera* have been revised relatively recently (CORNELL, 1967), to which additional data have been published (LÖBL, 1976; 1987), many species are difficult to distinguish and their distributions are poorly known.

Many species of *Baeocera* exhibit diagnostic external characters. In addition, their aedeagi are diverse and provide numerous characters. The lack of information on details of these features in former papers was the main source of difficulties the students of North American *Baeocera* experienced in the past.

The aim of this paper is to define the *Baeocera* species occurring in America north of Mexico, to provide a useful key for these species and to provide more information on the distribution of the species. Two problems concerning taxonomy and nomenclature remain unsolved. The identity of *B. discolor* Casey is unknown. The sole original specimen in the USNM is a female belonging possibly to the *picea* group which includes several very similar species, positively distinguished only by the aedeagal characters. Secondly, our definition of *B. cerbera* is based on the examination of one paratype which we hope is conspecific with the holotype, which was not available for study.

In absence of a phylogenetic hypothesis and of more detailed knowledge of the distribution of many species it is not possible to provide a biogeographical analysis of the New World *Baeocera*. However, some patterns may be pointed out: 1. *Baeocera* of America north of Mexico with 38 species are more speciose in comparison with the western Palaearctic area with 3 species; 2. the wide distributional range of most of the Eastern species; 3. the paucity of *Baeocera* in the Pacific area in which only the widely distributed *B. humeralis* occurs, and absence of *Baeocera* from the southern portions of the Pacific area, i.e., from California, and also from Oregon and Washington; 4. the high diversity of *Baeocera* of Arizona and Texas, with 10 species in Arizona (amongst which *B. sticta*, *B. elongata*, *B. lencyi*, and *B. solida* may be endemic) and 12 species in Texas (with *B. chisosa*, *B. hamata*, and *B. obesa* as possible endemics); 5. the genus is relative speciose in the Florida Keys where 4 species have been found. *Baeocera amricula*, *B. compacta*, and *B. pecki* are known only from the Florida Keys although the area is inhabited by widely distributed species (Peck, 1989).

## MATERIAL AND METHODS

We have examined and identified 3277 adult specimens, and examined lectotypes or syntypes of species described by CASEY (1893; 1900) and holotypes and/or paratypes of several critical species described by CORNELL (1967). Most species described by Cornell were identified using his descriptions and figures of aedeagi. Species described by other authors, i.e., LECONTE (1860), REITTER (1880), FALL (1910), and CHAMPION (1913) have been revised and sufficiently redefined by CORNELL (1967) and LÖBL (1976; 1987), respectively. The types of the Mexican and Central American species of *Baeocera* were examined by LÖBL (1992b).

The measurements and terminology are the same as in LESCHEN & *al.* (1990), except for the following: The true mesepimeron is not exposed in *Baeocera*. The

ridge delimiting a small area along posterior margin of mesepisternum is an external structure called "mesepimeral ridge" in LÖBL (1992a). The area is useful for identification purpose and is termed here as "mesepimeron".

The aedeagus of many scaphidiines, including the species of *Baeocera*, has rotated 90°. The "ventral", "dorsal", "left", and "right" sides referred to the primitive position within the abdomen, i.e. parameres facing ventral side of the abdomen.

Most species occurring in America north of Mexico, may be distinguished by their external characters. However, examination of the aedeagi is necessary to identify species in the *picea* group and most species in the *congener* group. Diagnostic characters of the male genitalia usually allow reliable identifications. For rapid identification, it is sufficient to glue the extracted aedeagus to the plate with the specimen. The characters of the aedeagus may be best seen if it is glued by its proximal end and the apical end is oriented upwards. For detailed observation and better protection, the aedeagus is mounted in Canada balsam on a transparent acetate label which is pinned below the specimen. The figures of the aedeagi, provided for all species, are based on such preparates. Descriptions of the parameres in the species of the *congener* group are also based on the dry aedeagi glued to the plate with the specimen.

Detailed locality data are given for new species and for a few rare species, otherwise only state records are given.

Sections on the material examined does not include data of type specimens or of other specimens covered by LÖBL (1976; 1987).

The following acronyms indicate depositories for specimens seen:

CMNC	Canadian Museum of Nature, Ottawa
CNCI	Canadian National Collection, Ottawa
CUIC	Cornell University Insect Collection, Ithaca
DENH	University of New Hampshire, Durham
FMNH	Field Museum of Natural History, Chicago
FSCA	Florida State Collection of Arthropods, Gainesville
JFCC	James F. Cornell, Jr. private collection, Charleston
JPIC	James Pakaluk private collection, Washington, D.C.
KSC	Karl Stephen private collection, Red Oak, Oklahoma
MUIC	Mississippi Entomological Museum, Mississippi State
MHNG	Muséum d'Histoire naturelle, Geneva
OSUC	Ohio State University Collection, Columbus
SEMC	Snow Entomological Museum, University of Kansas, Lawrence
UAIC	University of Arizona Insect Collection, Tucson
TAMU	Texas A & M University, College Station
USNM	United States National Museum, Washington, D.C

## TAXONOMY

### **Baeocera** Erichson

*Baeocera* ERICHSON, 1845; type species: *Baeocera falsata* ACHARD, 1920 - by Opinion 1221, ICZN, 1982.

*Sciatrophes* BLACKBURN, 1903; type species: *Sciatrophes latens* BLACKBURN, 1903 - by monotypy.

*Cyparella* ACHARD, 1924; type species: *Scaphisoma rufoguttatum* FAIRMAIRE, 1898 - by monotypy.

*Eubaeocera* CORNELL, 1967; type species: *Baeocera abdominalis* CASEY, 1900 - by original designation.

*Amaloceroschema* (sg) LÖBL, 1967; type species: *Baeocera (Amaloceroschema) freudei* LÖBL, 1967 - by original designation.

**D i a g n o s i s .** Antennal segment 3 elongate, not triangular, antennal segments 7 to 11 flattened, forming a loose club; mandible with single apical tooth; maxillary galea slender; apical segment of maxillary palpus narrower than preceding segment; eye moderately or hardly notched near antennal insertion; prothorax with a pair of internal cavities coated by denticulate or spinose structures; procoxal cavities closed; mesepimeral ridge distinct; metacoxae usually widely separated; first visible abdominal sternum lacking postcoxal lines.

**D i s t r i b u t i o n .** Worldwide. Most of the presently described species are from the Indoaustralian zoogeographical realm.

**N o m e n c l a t u r e .** The generic name *Baeocera* Erichson, 1845 was placed on the Official List of Generic Names in Zoology with the Name Number 2163. The specific name *falsata* Achard, 1920 is placed on the Official List of Specific Names in Zoology with the Name Number 2813.

**D i s c u s s i o n .** The Old World *Baeocera* were assigned to several species groups defined basically, or exclusively, by the male genital characters (LÖBL, 1979; 1984; 1992). The American species occurring north of Mexico may be placed into the following groups defined below:

The *apicalis* group (*B. apicalis* LeConte, *B. chisosa* sp.n., *B. eurydice* (Cornell), *B. obesa* sp.n., *B. pallida* Casey, and *B. sticta* sp.n.): median lobe subsymmetrical, narrow, with basal bulb strongly vaulted, apical portion slender, valves weakly sclerotized, ventral process distinct. Parameres simple, symmetrical. Internal sac with long, flattened flagellum, and flagellar guide-sclerite strongly curved to circular basally; ejaculatory duct visible; one or both sclerites circular in basal portion.

The *pecki* group (*B. pecki* sp.n.): median lobe symmetrical, basal bulb elongate, moderately vaulted, valves weakly sclerotized, closing ostium, ventral process distinct. Parameres simple, symmetrical. Internal sac with long, flattened flagellum strongly curved basally, joined to flagellar guide-sclerite; ejaculatory duct not traceable.

The *picea* group (*B. borealis* sp.n., *B. charybda* (Cornell), *B. hesperia* sp.n., *B. indistincta* sp.n., *B. picea* Casey, *B. scylla* (Cornell), and *B. similis* sp.n.): median lobe and parameres symmetrical, basal bulb moderately vaulted, ventral process inconspicuous, valves weakly sclerotized, not covering apically situated ostium. Parameres simple. Internal sac complex, with flagellum extruding, one median sclerite hook-like basally, and additional small sclerotized pieces connected by membranous structures.

The *nana* group (*B. nana* Casey): median lobe symmetrical, with large basal bulb overlapping short narrow apical portion; ventral process small, valves weakly sclerotized, lying apicad of ostium, situated at base of apical portion of median lobe.



Parameres simple, symmetrical. Internal sac with ejaculatory duct very long, extruding, with basally curved flagellum and additional central sclerite.

The *compacta* group (*B. compacta* sp.n.): aedeagus similar to that described for *picea* group, but median lobe with large ventral process and base of parameres expanded dorsally and ventrally; hook-like sclerite of internal sac absent.

The *humeralis* group (*B. humeralis* Fall): median lobe large, symmetrical, with conspicuously thick apical portion and small ventral process, valves weakly sclerotized, covering ostium. Parameres simple, symmetrical. Internal sac with complex of sclerites joined by membranous structures. Ejaculatory duct not traceable.

The *irregularis* group (*B. irregularis* Champion, and *B. wheeleri* Löbl from Mexico): median lobe large, asymmetrical, with large ostium situated between two dorsal valves; ventral process moderately large. Parameres simple, symmetrical, with base extended proximally. Internal sac bearing robust sclerites joined basally, one sclerite protruding (possibly homologous to flagellum), ejaculatory duct not traceable.

The *deflexa* group (*B. deflexa* Casey, *B. flagellata* (Löbl), *B. valida* (Löbl), and *B. major* Matthews from Mexico and Guatemala): median lobe large and asymmetrical, valves moderately sclerotized, partly covering narrow, subapical ostium; ventral processes small or moderately large. Parameres simple, symmetrical. Internal sac with flagellum long, curved basally and with flagellar guide-sclerite robust; ejaculatory duct not traceable.

The *congener* group (*B. cerbera* (Cornell), *B. congener* Casey, *B. falsata* Achard, *B. impunctata* sp.n., *B. inexpectata* sp.n., *B. lenczyi* sp.n., *B. securiforma* (Cornell), *B. solida* sp.n., *B. speculifer* Casey, and *B. youngi* (Cornell)): median lobe large, asymmetrical, with strongly sclerotized valves; ostium subapical, uncovered, situated at right half of median lobe; ventral processes small. Parameres somewhat asymmetrical or symmetrical, usually wide, with weakly sclerotized inner margin, rim partly covering inner surface. Internal sac with robust, basally curved, enlarged flagellum and with flagellar guide-sclerite robust, joined basally to a transverse sclerite; ejaculatory duct not traceable. The associated Old World species (LÖBL, 1984) do not share the characters of the internal sac (basally enlarged and curved flagellum, flagellar guide-sclerite joined to a transverse sclerite); they are here excluded from the *congener* group as defined above.

The *abdominalis* group (*B. abdominalis* Casey, *B. amicula* sp.n., *B. laevis* (Reitter), *B. robustula* Casey, and *B. texana* Casey): median lobe symmetrical, apically notched or bifid, with single short valve; basal bulb bearing ventral keel; ostium large, apical; ventral process large. Parameres symmetrical, simple, with base strongly enlarged, apex with or without setae. Internal sac usually with distinct flagellum, additional sclerites present or absent. Ejaculatory duct not traceable.

The *elongata* group (*B. elongata* sp.n., *B. hamata* sp.n., and *B. galapagoensis* Löbl from the Galapagos): median lobe symmetrical, trifid apically, with single ventral arm and two curved dorsal arms; ostium situated between latter, not covered by single dorsal valve; ventral process moderately large. Parameres symmetrical, with strongly enlarged bases, with or without apical setae. Internal sac complex, armed with strongly sclerotized pieces, ejaculatory duct not traceable.

The number of 38 North American species may seem high compared to 20 species of *Baeocera* described so far from South and Central America. This proportion may drastically change when larger collections of Neotropical scaphidiines will be studied. Members of the *apicalis*, *abdominalis*, *congener* and *elongata* groups from Argentina, Brazil, Paraguay, Mexico and from the Antilles are represented among numerous unidentified species of *Baeocera* housed in the MHNG.

#### KEY TO THE SPECIES OF *Baeocera* OF AMERICA NORTH OF MEXICO

- 1 Sutural stria of elytron short, starting beyond level of pronotal lobe (Fig. 50) ..... *pecki* sp.n.
- Sutural stria of elytron longer, curved along pronotal lobe and extended laterally, forming basal stria ..... 2
- 2 Basal stria interrupted (Figs 3, 7, 9) ..... 3
- Basal stria uninterrupted, joined to lateral stria (Figs 1, 5, 14) ..... 16
- 3 Large species 2.2 - 2.6 mm long ..... *deflexa* Casey
- Smaller species 1.0 - 1.8 mm long ..... 4
- 4 First abdominal ventrite with basal pits elongate, extended apically by striae or grooves (Figs 49, 57) ..... 5
- First abdominal ventrite with basal pits short, not extended apically by striae or grooves (Figs 4, 6, 8) ..... 6
- 5 Entire elytral disc very finely punctured ..... *elongata* sp.n.
- Center of elytral disc much more coarsely punctured than remaining surface (Fig. 56) ..... *hamata* sp.n.
- 6 Scutellum not visible or its exposed portion extremely small ..... 7
- Apical portion of scutellum distinct ..... 8
- 7 Lateral contours of pronotum and elytra continuously arcuate in dorsal view (Fig. 37) ..... *abdominalis* Casey
- Lateral contours of pronotum and elytra separately arcuate in dorsal view (Fig. 3) ..... *pallida* Casey
- 8 Metepisternum wide, with strongly arcuate suture (Figs 12, 13) .... *nana* Casey
- Metepisternum narrow or moderately wide, with straight or weakly arcuate suture (Fig. 8) ..... 9
- 9 Elytron with very fine discal punctures and with a few scattered larger punctures ..... *obesa* sp.n.
- Entire elytron very finely punctured ..... 10
- 10 Apical portion of median lobe almost as wide as basal bulb (Fig. 12) ....  
..... *picea* Casey
- Apical portion of median lobe much narrower than basal bulb ..... 11
- 11 Parameres in lateral view curved away from curvature of median lobe for at least half of their length (Fig. 77, 81) ..... 12
- Parameres in lateral view straight or curved toward curvature of median lobe ...13
- 12 Parameres in lateral view evenly curved throughout their length (Fig. 81)  
..... *similaris* sp.n.

- Parameres in lateral view S-shaped, in apical portion curved away from curvature of median lobe (Fig. 77) ..... *charybda* (Cornell)
- 13 Parameres in lateral view as wide as apical portion of median lobe (Fig. 79) ..... *scylla* (Cornell)
- Parameres in lateral view much narrower than apical portion of median lobe ..14
- 14 Apical portion of median lobe in ventral view slender, nearly parallel-sided (Fig. 82) ..... *indistincta* sp.n.
- Apical portion of median lobe in ventral view robust and tapering toward rounded tip; parameres notched near tip, curved toward each other ... 15
- 15 Tip of median lobe wide in dorsal view, thick in lateral view. Parameres weakly sinuate in in lateral view (Figs 84, 85) ..... *borealis* sp.n.
- Tip of median lobe pointed in dorsal view, narrow in lateral view. Parameres not sinuate in lateral view (Figs 86, 87) ..... *hesperia* sp.n.
- 16 Lateral portion of metasternum coarsely punctured (Figs 6, 30) ..... 17
- Lateral portion of metasternum very finely punctured ..... 18
- 17 Length 1.2 - 1.3 mm. Body rather pale reddish-brown ..... *sticta* sp.n.
- Length 2 - 2.4 mm. Body blackish-brown to black ..... *solida* sp.n.
- 18 Tip of scutellum exposed ..... 19
- Scutellum completely covered by pronotal lobe ..... 25
- 19 Large species 1.8 - 2.4 mm long ..... 20
- Smaller species 1.1 - 1.7 mm long ..... 21
- 20 Elytral punctation much coarser than that of pronotum. Pronotal apical angle S-shaped in oblique view. Length 2.2 - 2.4 mm (Fig 32) ... *valida* (Löbl)
- Elytral punctation very fine, not coarser than that of pronotum. Pronotal apical angle not S-shaped. Length 1.8 - 2.0 mm ..... *impunctata* sp.n.
- 21 Mesocoxal line parallel to coxal cavity ..... 22
- Mesocoxal line arcuate (Fig. 2) ..... *eurydice* (Cornell)
- 22 Basal pits of first abdominal ventrite elongate and extended apically by striae. Pits margining mesocoxal line extended along anapleural suture. Elytron usually maculate (Fig. 15) ..... *humeralis* Fall
- Basal pits of first abdominal ventrite not extended by striae. Pits margining mesocoxal line extended at most to tip of "mesepimeron". Elytron immaculate ..... 23
- 23 Pits margining mesocoxal line elongate (Fig. 46) ..... *texana* Casey
- Pits margining mesocoxal line not elongate..... 24
- 24 Metepisternal suture straight or weakly arcuate (Fig. 42) ..... *laevis* (Reitter)
- Metepisternal suture distinctly arcuate (Fig. 40) ..... *amicula* sp.n.
- 25 Anterior half of elytron densely and coarsely punctured, apical third of elytron almost impunctate ..... *irregularis* Champion
- Elytral punctation not as above ..... 26
- 26 Pronotal margin strongly curved in lateral view ..... *compacta* sp.n.
- Pronotal margin moderately curved in lateral view ..... 27
- 27 Smaller species 1.2 - 1.4 mm long ..... 28
- Larger species at least 1.55 mm long ..... 30

- 28 Elytral disc very finely punctured and with several scattered large punctures ..... 29
- Elytral disc only very finely punctured ..... *robustula* Casey
- 29 Pronotal margin evenly arcuate in lateral view. Large elytral punctures shallow but distinct ..... *apicalis* LeConte
- Pronotal margin more arcuate in middle, in lateral view. Large elytral punctures deep, very distinct ..... *chisosa* sp.n.
- 30 Basal pits of first abdominal ventrite extended apically by striae (Fig. 53) ..... *lenczyi* sp.n.
- Basal pits of first abdominal ventrite not extended by striae ..... 31
- 31 Elytral disc with a few scattered large punctures ..... 32
- Elytral disc without any large punctures ..... 33
- 32 Parameres asymmetrical, right paramere arcuate, left one almost straight (Figs 102, 103) ..... *cerbera* (Cornell)
- Parameres symmetric, arcuate (Fig. 121) ..... *speculifer* Casey
- 33 Antennomere 3 about as long as antennomere 4 ..... 34
- Antennomere 3 shorter than antennomere 4 ..... 35
- 34 Aedeagus wide, with robust, basally curved flagellum (Fig. 106) ...
- ..... *falsata* Achard
- Aedeagus narrow, with slender, almost straight flagellum (Figs 98, 99)
- ..... *flagellata* (Löbl)
- 35 Flagellar guide-sclerite with small subapical denticle, tapering toward pointed tip (Figs 122, 123) ..... *youngi* (Cornell)
- Flagellar guide-sclerite without subapical denticle ..... 36
- 36 Flagellar guide-sclerite with simple, pointed tip; middle portion of each paramere extended by wide membranous lobe (Fig. 109) .... *inexpectata* sp.n.
- Flagellar guide-sclerite with wide tip; middle portion of each paramere not extended ..... 37
- 37 Parameres in lateral view subangulate, with rounded apical margin (Fig. 105) ..... *congener* Casey
- Parameres in lateral view curved, tip of left one with minute point (Fig. 117) ..... *securiforma* (Cornell)

#### THE *apicalis* GROUP

#### **Baeocera apicalis** LeConte

*Baeocera apicalis* LECONTE, 1860: 323; CASEY, 1893: 518; LÖBL, 1987: 317.

*Scaphisoma distincta* BLATCHLEY, 1910: 496.

*Eubaeocera apicalis*; CORNELL, 1967: 7.

**Description.** Length 1.3 - 1.4 mm. Body dark reddish-brown to black. Antennomere 3 shorter than 2, as long as or somewhat shorter than 4. Lateral contours of pronotum and elytron separately arcuate in dorsal view (Fig. 16). Pronotal microsculpture distinct at 50x magnification. Scutellum completely covered by



pronotal lobe. Elytron with complete basal stria. General punctation of elytral disc fine, or very fine, similar to pronotal punctation, a few scattered, much coarser punctures always present. Mesocoxal line moderately convex, with marginal pits not elongate and not extended laterally (Fig. 17). Lateral portion of metasternum very finely punctured. Metepisternum wide, parallel- or subparallel-sided, its suture straight or somewhat rounded and impunctate. First abdominal ventrite with coarse, round basal pits, lacking microsculpture. Aedeagus (Figs 58, 59 ) 0.50 - 0.53 mm long. Median lobe with basal bulb about as long as apical portion; apical portion in dorsal view parallel-sided, with apical margin broadly rounded. Apical portion of median lobe in lateral view parallel-sided, with straight ventral and dorsal margins, except for curved and pointed asymmetrical apex. Valves asymmetrical. Internal sac with fairly wide flagellum, distinct flagellar guide-sclerite and small additional basal sclerite. Ejaculatory duct traceable in basal portion of internal sac. Parameres slender, indistinctly curved, with moderately enlarged base.

**Type material.** For *B. apicalis* see CORNELL, 1967: 7, for *S. distincta* see LÖBL, 1987: 317.

**Material examined**, 727 specimens; UNITED STATES: 2, Arkansas; 12, Connecticut; 19, Florida; 1, Georgia; 3 Illinois; 1, Indiana; 21, Kansas; 10, Kentucky; 2, Maryland; 34, Massachusetts; 6, Michigan; 4, Minnesota; 4, Mississippi; 12, Missouri; 2, Nebraska; 99, New Hampshire; 13, New Jersey; 10, New York; 20, North Dakota; 7, North Carolina; 16, Ohio; 143, Oklahoma; 24, Pennsylvania; 6, Rhode Island; 1, Tennessee; 34, Texas; 1 Vermont; 2, Virginia; 18, West Virginia; 12, Wisconsin; CANADA: 11, Manitoba; 3, New Brunswick; 125, Ontario; 49, Quebec.

**Distribution.** This common species occurs throughout eastern North America, from Quebec to Florida, west to Manitoba, North Dakota and Texas.

**Biology.** This species occurs in forest litter of all kinds (sphagnum moss, fungi, litter, leaf duff, cedar duff). It has been found throughout the year, but it is most numerous in late fall and in early winter.

**Remarks.** The distinctive body contour, in combination with the scattered coarse punctures on the elytra, allow rather easy recognition of this species. *Baeocera apicalis* can be confused with *B. pallida* and *B. chisosa*. See remarks under those species.

### ***Baeocera chisosa* sp.n.**

**Description.** Length 1.25 - 1.4 mm, width 0.78 - 0.83 mm. Body rather pale reddish-brown. Antennomere 3 as long as 4, shorter than 2. Lateral contours of pronotum and of elytron separately arcuate in dorsal view (Fig. 35). Pronotal microsculpture well visible at 50x magnification. Scutellum completely covered by pronotal lobe. Elytron with complete basal stria. Most of elytral punctures are very fine, similar to those on pronotum. Several additional very coarse punctures present on basal half of elytron (Fig. 35). Mesocoxal line subparallel to coxa, with marginal pits coarse, round and not extended laterally. Lateral portion of metasternum with extremely fine, almost obsolete punctuation. Metepisternum wide, anteriad may or may not be weakly narrowed, with oblique impunctate suture (Fig. 36). First abdominal ventrite not microsculptured (90x magnification), with somewhat elongated basal pits. Aedeagus

(Figs 66, 67) 0.38 - 0.44 mm long. Apical wall of basal bulb oblique, with minute tubercle. Apical portion of median lobe as long as, or longer, than basal bulb, parallel-sided, with obliquely truncate apical margin in dorsal view; evenly thick, moderately curved and pointed at tip in lateral view; ventral wall evenly and weakly concave. Valves asymmetrical. Flagellum and flagellar guide-sclerite moderately wide in both dorsal and lateral views. Ejaculatory duct traceable at base of flagellum, additional sclerite absent. Parameres slender, moderately widened basally.

**Type material.** Holotype, male: UNITED STATES: Texas, Brazos Co., Koppe's Bridge, 5 mi SE College Sta, 21-22.I.1988, R. Anderson, Berlese ravine litter (USNM).

Paratypes, 5: 2 males, same data as holotype (TAMU); 1 female: Texas, Big Bend National Park, Chisos Mts., Maple Canyon, 5000 ft, 27.IV.1952, H. S. Dybas (FMNH); 1 male, 1 female, Texas, Brewster Co., Big Bend N. P., Oak Canyon, 1463 m, 8.IX.1980, R. Anderson (TAMU, KSC).

**Distribution.** Texas.

**Biology.** Unknown (the specimens were taken in berlese samples).

**Remarks.** *Baeocera chisosa* is quite similar to *B. apicalis*. Both have an elongate-oval body outline, and lack a visible scutellum. The most striking feature of *B. chisosa* are the coarse punctures in the basal half of the elytra.

### ***Baeocera eurydice* (Cornell)**

*Eubaeocera eurydice* CORNELL, 1967: 8.

**Description.** Length 1.1 - 1.2 mm. Body dark reddish-brown. Antennomere 3 as long as 4, much shorter than 2. Lateral contours of pronotum and elytron separately, regularly arcuate in dorsal view (Fig. 1). Pronotal microsculpture visible at 50x magnification. Exposed portion of scutellum very small. Elytron with complete basal stria. Discal punctation very fine, most punctures similar to those on pronotum, several additional punctures distinctly coarser. Mesocoxal line moderately convex, with coarse, round marginal pits extended laterally to mesepimeral ridge (Fig. 2). Lateral portion of metasternum with very fine punctures, or with a few coarser punctures along anterior margin. Metepisternum wide, parallel- or subparallel-sided, with straight, punctured suture. First ventrite has barely visible microsculpture and moderately elongate, coarse basal pits. Aedeagus (Figs 62, 63) 0.32 - 0.35 mm long. Median lobe has rather narrow, high basal bulb about as long as apical portion; apical portion gradually narrowed in dorsal view, with fairly stout, weakly curved and rounded tip. Ventral wall of apical portion of median lobe convexly rounded in lateral view, notched above ventral process. Valves symmetrical. Flagellum and flagellar guide sclerite of internal sac very thin, of about same width in lateral view, moderately wide in dorsal view. Ejaculatory duct traceable only in lateral view. Parameres somewhat sinuate, notably enlarged apically.

**Type material.** See CORNELL, 1967: 8.

**Material examined:** 73 specimens, all from UNITED STATES: Arizona.

**Distribution.** This species seems to be confined to the mountains of southeastern Arizona.

**B i o l o g y :** *Baeocera eurydice* is an inhabitant of the oak-zone. It lives in oak and sycamore litter, and was once found in dead yucca. Adults were taken during January, March, May, July, August, October and December.

**R e m a r k s :** *Baeocera eurydice* is the smallest of the western species. It differs from the slightly larger *B. hesperia* by the convex mesocoxal lines, which are parabolic in the latter species.

### **Baeocera pallida** Casey

*Baeocera pallida* CASEY, 1900: 58.

*Eubaeocera pallida*; Cornell, 1967: 7.

**D e s c r i p t i o n .** Length 1.3 - 1.4 mm. Body more or less dark reddish brown, pronotum as dark as or darker than elytra. Antennomere 3 as long as 4, shorter than 2. Lateral contours of pronotum and elytron separately arcuate in dorsal view (Fig. 3). Pronotal microsculpture almost indistinct (90x magnification). Minute tip of scutellum exposed, or scutellum completely covered by pronotal lobe. Elytron with basal stria broadly interrupted. Elytral punctation very fine, near base and on apical area similar to pronotal punctation, coarser on middle of disc. Mesocoxal line convex, with marginal pits round, extended laterally to tip of "mesepimeron". Lateral portion of metasternum with very fine punctures. Metepisternum wide, parallel-sided or somewhat narrowed anteriorly, with straight impunctate suture (Fig. 4). First abdominal ventrite lacking microsculpture, with basal pits coarse, elongated only somewhat or not at all. Aedeagus (Figs 60, 61) 0.36 - 0.39 mm long. Basal bulb of median lobe slender and rather high, as long as apical portion of median lobe; apical portion gradually narrowed toward tip, with narrow apex (dorsal view), ventral wall sinuate in lateral view, tip fairly stout, curved. Valves almost symmetrical. Flagellum and flagellar guide-sclerite of internal sac very thin, except for the moderately widened (dorsal view), curved basal portion. Parameres not or only somewhat curved, almost evenly slender.

**T y p e m a t e r i a l .** See CORNELL, 1967: 7.

**M a t e r i a l e x a m i n e d ,** 31 specimens: UNITED STATES: 1, Illinois; 1, Missouri; 1, Nebraska; 1, New Hampshire; 1, Ohio; 5, Oklahoma; 3, Texas; 2, Vermont; CANADA: 10, Ontario; 6, Quebec.

**D i s t r i b u t i o n .** This rare species seems to be confined to eastern North America. From Vermont through Quebec and Ontario to Nebraska and eastern Oklahoma.

**B i o l o g y .** Some of the specimens bear the following data "sifted leaf litter on spring edge, sifted forest litter, sifted red oak and chestnut oak litter, humus". Adults were taken from April to October.

**R e m a r k s .** *Baeocera pallida* resembles *B. apicalis* with which it is sympatric throughout its range. The most outstanding difference between these two species is the basal stria of the elytra. It is incomplete in *B. pallida* and complete in *B. apicalis*. In addition, *B. apicalis* has no visible scutellum, which may be exposed, though minute, in *B. pallida* and the elytron in *B. apicalis* has a few scattered larger shallow intermixed punctures, which are absent from *B. pallida*.



***Baeocera sticta* sp. n.**

**Description.** Length 1.2 - 1.3 mm, width 0.75 - 0.83 mm. Body rather pale red-dish-brown. Antennomere 3 as long as 4, much shorter than 2. Pronotal microsculpture usually distinct at 50x magnification. Lateral contours of pronotum and elytron separately arcuate in dorsal view (Fig. 5). Point of scutellum exposed. Elytron with complete basal stria, discal punctation fairly coarse, with punctures about as large as intervals, only apical portion of elytron very finely punctured. Mesocoxal line moderately convex, with marginal pits not or only somewhat elongated, extended to tip of "mesepimeron". Lateral portion of metasternum shows coarse punctation, except near apical margin (Fig. 6). Metepisternum rather wide, parallel-sided or somewhat narrowed anteriorly, with straight, punctate suture. First abdominal ventrite with coarse elongate basal pits and microsculpture indistinct or visible at 90x magnification. Aedeagus (Figs 64, 65 ) 0.39 - 0.42 mm long. Basal bulb of median lobe rather narrow and high, as long as apical portion of median lobe or somewhat shorter. Median lobe barely narrowed apically in dorsal view, weakly tapering, somewhat inclined in lateral view, at tip stout, apex somewhat curved, with rounded margin in dorsal view. Ventral margin of apical portion of median lobe almost straight in lateral view. Valves asymmetrical. Flagellum and flagellar guide-sclerite very thin in lateral view, moderately wide in dorsal view, indistinct apically. Apical portion of ejaculatory duct extruded. Parameres slender, almost straight in dorsal view, with weakly enlarged base in lateral view.

**Type material.** Holotype, male: UNITED STATES: Arizona, Chiricahua Mts, east Turkey Crk. 7 mi W. 22.VII.1969, A. Smetana (CNCI).

Paratypes 18, all from Arizona: 4, Cochise Co., Chiricahua Mts., 5 mi W. Portal, 5500' 23.VII. 1969, A. Smetana (CNCI); 1, Cochise Co., Chiricahua Mts., Portal 5000', 21.VII.1969, A. Smetana (MHNG); 1, Cochise Co., 3 mi. SW Portal 5000', 3.VIII.1985, J. & D. Pakaluk (KSC); 3, Huachuca Mts, Ramsey Cn. 2.VIII.1969, A.Smetana (MHNG); 1, Huachuca Mts, Miller Cn. 5500', 1.VIII.1969, A. Smetana (MHNG); 3, Santa Cruz Co., Madera Cyn., 20.XI.1971, D.S. Chandler, berlese oak duff (OSUC); 4, Santa Cruz Co., Madera Cyn., 6-15.X.1971, R. Lenczy (USNM); 1, Santa Cruz Co., 3 mi. N Ruby, 23.III.1979, F. Werner, oak duff (UAIC).

**Distribution.** Southern Arizona.

**Biology.** Specimens were found in forest habitats, in sifted moist ground litter.

**Remarks.** *Baeocera sticta* is the only species having coarse punctation on both the elytra and the lateral portions of the metasternum.

***Baeocera obesa* sp.n.**

**Description.** Length 1.25 mm, width 0.82 mm. Body dark brown, elytron and abdomen paler than pronotum, apex of elytron paler than elytral disc. Antennomere 2 shorter than 3 and 4 combined, 3 as long as 4. Lateral contours of pronotum and elytron separately arcuate in dorsal view. Pronotal microsculpture distinct at 50x magnification. Exposed tip of scutellum relatively large. Basal stria of elytron becoming finer laterally, interrupted in humeral area. Elytral punctation



consisting of very fine punctures similar to those of pronotum, with several scattered larger punctures present. Mesocoxal line arcuate, with round, moderately large marginal pits that do not extend laterally. Lateral portion of metasternum very finely punctured. Metepisternum wide, with straight, impunctate suture. First abdominal ventrite with elongate basal pits; microsculpture obsolete. Aedeagus (Figs 68, 69) 0.32 mm long. Median lobe similar to that of *B. eurydice*, with basal bulb longer than apical portion, latter sinuate ventrally, deeply notched above protruding ventral process, with tip stout, obtuse, not inclined. Valves symmetrical. Internal sac with thin flagellum narrowed gradually toward apex. Flagellar guide-sclerite absent. Ejaculatory duct not traceable. Parameres weakly sinuate, strongly enlarged apically in lateral view, moderately narrowed toward apex in dorsal view.

**Type material.** Holotype, male: Texas, Culberson Co., Guadalupe Mt. N.P., Mc. Kittrick Can., 5300 ft, 22-26.VII.1975, S. Peck Ber. 310 (CNCI).

**Distribution.** Western Texas.

**Biology.** The specimen was taken in ground litter sample from a maple (*Acer grandidentata*) forest.

**Remarks.** This species appears to be particularly similar to *B. eurydice*. It may be distinguished from the latter species by the interrupted basal stria of the elytron and by the parameres of the aedeagus not widened apically in dorsal view.

#### THE *pecki* GROUP

##### ***Baeocera pecki* sp.n.**

**Description.** Length 1.65 mm, width 1.10 mm. Body dark reddish-brown, elytra paler than thorax. Lateral contours of pronotum and elytron continuously arcuate in dorsal view (Fig. 50). Pronotal microsculpture indistinct at 90x magnification. Scutellum completely covered by pronotal lobe. Elytron without basal stria, sutural stria short, starting beyond level of pronotal lobe, not curved outward, discal punctation extremely fine, similar to that of pronotum. Mesocoxal line parallel to coxa, with marginal pits elongate, extended along anapleural suture past tip of "mesepimeron" (Fig. 51). Lateral portion of metasternum very finely punctured. Metepisternum wide, suture impunctate, straight or weakly arcuate. First abdominal sternite not microsculptured, with round basal pits. Aedeagus (Figs 70, 71) 0.58 mm long. Median lobe slender, with basal bulb elongate, longer than apical portion; latter inclined, weakly narrowed apically, with ventral wall almost straight in lateral view; tip not curved. Dorsal valves symmetrical. Ventral process small, not protruding. Internal sac bearing slender flagellum joined proximally to flat, circular sclerite. Parameres weakly narrowed apically, almost straight in both dorsal and lateral views.

**Type material.** Holotype, male: UNITED STATES: Florida, Monroe Co., Layton, Long Key, Ber. 225, 8.VIII.1974, S. Peck (CNCI).

Paratype female: same data as holotype.

**Distribution.** Florida Keys.

**Biology.** The specimens were taken in a ground litter sample from hardwood hammock forest.

**Remarks.** Both specimens have the antennae broken off. This species may be readily distinguished from all other North American species of *Baeocera* by the short sutural striae of the elytra. The aedeagal characters indicate possible close relationship with the species of the *picea* group. The species is named in honor of S. B. Peck, Carleton University Ottawa, whose field work revealed several new species of *Baeocera*.

#### THE *picea* GROUP

#### ***Baeocera picea* Casey**

*Baeocera picea* CASEY, 1893: 520.

*Eubaeocera picea*; CORNELL, 1967: 8.

**Description.** Length 1.0 - 1.2 mm. Body more or less dark reddish-brown to black-brown. Antennomere 2 about as long as 3 and 4 combined, antennomere 3 much shorter than 4. Lateral contours of pronotum and elytron continuously arcuate in dorsal view (Fig. 7). Pronotal microsculpture barely visible at 50x magnification. Apical portion of scutellum exposed. Elytron with basal stria broadly interrupted in humeral area. Elytral punctation very fine all over, near base similar to that on pronotum, on apical half of elytron usually more distinct. Mesocoxal line parabolic (Fig. 8), with fine, rounded or only somewhat elongate marginal pits extended laterally to tip of "mesepimeron". Lateral portion of metasternum very finely punctured. Metepisternum wide, parallel-sided or somewhat narrowed anteriorly, with straight or weakly arcuate, very finely punctured suture. First abdominal ventrite not microsculptured (90x magnification), basal pits strongly elongate and extended by striae. Aedeagus (Figs. 72 to 74) 0.38 - 0.45 mm long. Median lobe wide and relatively flat, with apical portion weakly narrowed and barely inclined. Ventral margin near apex almost straight in lateral view. Tip pointed in lateral view. Valves asymmetrical. Internal sac with protruding ejaculatory duct and complex sclerotized pieces. Basal and dorsal membranes possessing hairy and papillose structures. Parameres slender, narrowed and incurved apically, central portion straight and parallel-sided in dorsal view, base moderately enlarged.

**Type material.** See CORNELL, 1967: 8.

**Material examined.** 433 males: UNITED STATES: 28 Arkansas; 8, Florida; 3, Georgia; 7, Illinois; 4, Indiana; 4, Kansas; 34, Kentucky; 6, Massachusetts; 5, Maryland; 5, Michigan; 29, Mississippi; 2, Missouri; 3, New Hampshire; 1, New Jersey; 7, North Carolina; 27, Ohio; 227, Oklahoma; 1, Pennsylvania; 22, Texas; 32, Virginia; 9 West Virginia; CANADA: 2, Ontario, 1 Quebec; MEXICO: 2, Tamaulipas, 2 mi W Gomez Faria, 5.VII.1986, P. Kovarik, rotting log (TAMU).

**Distribution.** This common species occurs from New Hampshire to Florida, west to Michigan, Kansas, Oklahoma, Texas, and Mexico.

**Biology.** *Baeocera picea* has been found in all sorts of plant debris, such as forest litter, wood rat nest, grass clippings, old hay, rotten wood, saw dust pile, stump debris, also in flood debris. Adults are present throughout the year. Records from slime molds are given by LAWRENCE & NEWTON, 1980: 137 and NEWTON, 1984:

319. Specimens from Virginia and West Virginia (CUIC) were taken from *Arcynia incarnata*, *A. denudata*, *Tubifera ferruginosa*, *Stemonitis exifera*, *Ceratiomyxa fruticulosa*, *Comatrichia typhoides*.

**Remarks.** *Baeocera picea* and all eastern members of the *picea* group may be recognized by their small size, parabolic or subangulate mesocoxal lines, by the incomplete basal striae of the elytra, and visible tip of the scutellum. Male genitalia must be examined to identify them to species. Females cannot be identified at present.

### ***Baeocera borealis* sp.n.**

**Description.** Length 1.4 mm, width 0.84 mm. Body dark reddish-brown with paler apex of abdomen. Lateral contours of pronotum and of elytron continuously arcuate in dorsal view. Pronotal microsculpture distinct at 90x magnification. Apex of scutellum exposed. Elytron with basal stria broadly interrupted and lateral margin straight in middle; punctation coarser than that of pronotum, except near base. Mesocoxal line parabolic, with fine marginal pits rounded and not extended laterally. Lateral portion of metasternum very finely punctured. Metepisternum wide, with straight impunctate suture. First abdominal ventrite with elongate basal pits, and obsolete microsculpture at 90x magnification. Aedeagus (Figs 84, 85) 0.54 mm long. Median lobe fairly thick, with apical portion robust, rather strongly inclined, laterally margined, and with deep median depression and sinuate contours in lateral view. Tip of median lobe short, truncate in dorsal view, obtuse, not curved in lateral view. Internal sac with basal transverse sclerite extended proximally and forming moderately sclerotized, spiral structure (dorsal view). Flagellum extruding, joined proximally with membranous structures. Parameres in dorsal view wide basally, slender in apical half; each paramere almost parallel-sided toward apical third, then tapering in lateral view, gradually narrowed toward somewhat widened and curved apical portion in dorsal view.

**Type material.** Holotype male: UNITED STATES: North Dakota, Richland Co., Mirror Pool, 10.X.1965, R. Gordon (USNM).

**Distribution.** North Dakota.

**Remarks.** The holotype has the antennae broken off.

### ***Baeocera charybda* (Cornell)**

*Eubaeocera charybda* CORNELL, 1967: 9.

**Description.** Length 1.20 - 1.35 mm. Most external characters as in *B. picea* (Figs 7, 8). Antennomere 3 somewhat longer, antennomere 2 shorter than 3 and 4 combined. Lateral contours of pronotum and of elytron continuously or separately arcuate in dorsal view. Pits margining mesocoxal line round and not extended laterally. Metepisternum with more or less arcuate, impunctate suture. Aedeagus (Figs



75 to 77) 0.53 - 0.55 mm long. Median lobe with normally thick basal bulb and slender, distinctly curved and tapering apical portion. Apical portion of median lobe with ventral wall deeply notched medially and with concave contours. Valves almost symmetrical. Internal sac complex, with protruding flagellum and membranes bearing papillose and spinose structures. Parameres slender, sinuate, apically somewhat narrowed, at base weakly enlarged.

**Type material.** See CORNELL, 1967: 9.

**Material examined,** 85 males: UNITED STATES: 2, Arkansas; 2, Illinois; 1, Kentucky; 4, Maryland; 6, Michigan; 10, Mississippi; 2, New Hampshire; 12, Ohio; 43, Oklahoma; 2, Virginia; 1, Wisconsin.

**Distribution.** This species occurs from New Hampshire to Virginia, west to Wisconsin and Oklahoma.

**Biology.** The species is a typical forest litter inhabitant. Specimens were collected in leaf litter, in rotten wood and in log debris. Adults are present throughout the year. Taken on *Stemonitis exifera*. Slime mold record is given by LAWRENCE & NEWTON, 1980:137.

**Remarks.** It is likely that this species is the same as *B. discolor* Casey, but since the only known specimen is a female, its identity remains doubtful. It bears the following labels: *discolor* Csy.; Mic /Michigan/; Casey bequest 1925; Type USNM 48755; 965126-1; a vial with body parts and parts on slide.

### ***Baeocera indistincta* sp. n.**

**Description.** Length 1.15 - 1.20 mm, width 0.75 - 0.77 mm. Body dark brown to black, apex of elytron paler. Antennomere 2 shorter than 3 and 4 combined, antennomere 3 shorter than 4. Lateral contours of pronotum and of elytron separately arcuate in dorsal view. Pronotal microsculpture visible at 90x magnification. Point of scutellum exposed. Elytron with basal stria broadly interrupted in humeral area, discal punctation even and very fine, similar to that on pronotum. Mesocoxal line with marginal pits fine, round and not extended laterad. Lateral portion of metasternum very finely punctured. Metepisternum wide, with suture impunctate, more or less arcuate. First abdominal ventrite with elongate basal pits and obsolete microsculpture (90x magnification). Aedeagus (Figs 82, 83) 0.37 - 0.40 mm long. Median lobe slender, with basal bulb moderately high and apical portion moderately inclined. Median lobe distinctly narrowed only near apex, and with rounded apical margin; ventral wall somewhat convex, at apex weakly curved in lateral view. Base of internal sac with extremely fine and short hairy structures. Flagellum enlarged in middle, with basal and apical portions very slender, extruding apically, joined basally with one long, irregularly shaped sclerite. Parameres very slender, gradually narrowed apically, in dorsal view almost straight, except for their curved apex, in lateral view weakly sinuate or curved, and at base moderately enlarged.

**Type material.** Holotype: UNITED STATES: New Hampshire, Strafford Co., 1 mi SW Durham, 27.V. - 10.VI.1987, D.S. Chandler (UNHC).

Paratypes, 56 males: UNITED STATES: 1, Alabama, Franklin Co., The Dismals, 665 K, 30.VIII.1958, H.R. Steeves Jr., rock crevice debris (FMNH); 1, Arkansas, Pike Co.,



Delight, 8.XII.1976, R.T. Allen (SEMC); 1, Illinois, McHenry Co., Moraine Hills State Park, 7.IV.1984, L.E. Watrous, litter at log (FMNH); 2, Indiana, Porter Co., Indiana Dunes state Park, 22.VIII.1946, H.S. Dybas (FMNH); 1, Maryland, Offutt's Isl., 16.VII.1916, Loomis & Barber (USNM); 7, Mississippi, Oktibbeha Co., Noxubee Ref., 5.II.1982, G.L. Snodgrass, berlese - litter hardwood forest (MUIC) and 4, same data but 28.II.1981, R.L. Brown, hardwood litter (MUIC); 1, Noxubee Co., Noxubee Wild. Ref., 8.III.1984, T. Wofford, berlese - under log (MUIC); and 1, Noxubee Wild. Ref. 15.I.1986, St. MacDonald (MUIC); 4, Washington Co., Stoneville, 25.I.1982, 25.II.1982, 12.III.1982, 14.II.1983, G. Snodgrass, rotten logs, litter hardwood forest (MUIC); 1, New Jersey, Midvale, 11.XI.1939, E. Shoemaker (USNM); 1, New Hampshire, Carroll Co., 1 mi N Wonalance E Fork, Spring Brook., 2-10.VII.1985, 1900 ft., D.S. Chandler, FIT (DENH); 3, New York, LI (Long Island) Flushing (DENH); 13, Oklahoma, Latimer Co., VII.1988, XI. 1984, and IV - XI.1991, K. Stephan, sifting forest litter (KSC, MHNG); 1, Ohio, Franklin Co., Columbus, 30.X.1975, Q.D. Wheeler (CUIC); CANADA: 1, New Brunswick, Kouchibouguac N.P., 30.VI.1977, J.R. Vockeroth, Code-54535; 1, Ontario, Rondeau Pr. Pk., end Lakeshore Rd., 1.VI.1985, A. Davis & J.M. Campbell (CNCI).

**D i s t r i b u t i o n .** This rare species occurs from New Brunswick to Alabama, west to Oklahoma.

**B i o l o g y .** The species inhabits forest litter. Adults were found from January to November.

### ***Baeocera hesperia* sp.n.**

**D e s c r i p t i o n .** Length 1.30 - 1.45 mm, width 0.81 - 0.94 mm. Body reddish-brown, elytra paler than pronotum, yellowish at apices. Antennomere 2 about as long as 3 and 4 combined, antennomere 3 shorter than 4. Lateral contours of pronotum and of elytron continuously arcuate in dorsal view (Fig. 9). Pronotal microsculpture distinct at 90x magnification. Apical portion of scutellum exposed. Elytron with basal stria broadly interrupted in humeral area; entire elytral punctation very fine, similar to that of pronotum. Mesocoxal line strongly parabolic (Fig. 10), with marginal pits round and not extended laterally. Lateral portion of metasternum very finely punctured. Metepisternum wide, its suture very finely punctured, straight or somewhat arcuate. First abdominal ventrite lacking microsculpture (90x magnification), with somewhat elongate basal pits. Aedeagus (Figs 86, 87) 0.47 - 0.50 mm long. Median lobe almost evenly narrowed and rather strongly curved apically, gradually tapering in dorsal view. Ventral wall of apical portion of median lobe broadly concave, tip pointed (lateral view). Internal sac armed with several sclerites joined by membranes, lacking distinct flagellum. Central and basal sclerites flattened, base with additional moderately sclerotized structures. Parameres somewhat curved beyond base, almost parallel-sided (holotype) or parallel-sided (paratypes) in lateral view; narrowed in middle portion, evenly slender and moderately curved in apical half.

**T y p e m a t e r i a l .** Holotype, male: UNITED STATES: Colorado, Ouray, 7500 - 8000 ft., 1 - 15.VII. 1897, H. F. Wickham (USNM).

Paratypes, 12 males, all from UNITED STATES, Arizona: 1, Chiricahua Mts., 10.VIII.1907, J. L. Webb (USNM); 2, Huachuca Mts., Bear Saddle, 8100', 5.VII.1979, A. Smetana (CNCI); 1, Huachuca Mts., Carr Cyn., 2150m, 23.VII.1967, J. M. Campbell (CNCI); 1, Huachuca Mts., Miller Cyn., 7200-7800', 4.VIII.1979, A. Smetana (CNCI); 7, Santa Rita Mts., Mt. Wrightson, 8000-8500', 9.VIII.1979, A. Smetana (CNCI).

**Distribution.** This rare species occurs in the mountains of Colorado and Arizona.

**Biology.** Unknown. The collectors of this material are avid sifters, and it is likely the specimens were collected thus.

**Remarks.** *Baeocera hesperia* is one of two western members of the *picea* group. As all members of the group, it can be recognized by the aedeagal characters, in combination with the distinct scutellum, the incomplete basal stria of the elytron, and the parabolic mesocoxal line.

### ***Baeocera scylla* (Cornell)**

*Eubaeocera scylla* CORNELL, 1967: 8.

**Description.** Length 1.0 - 1.1 mm. Very similar to *B. picea* but with lateral contours of pronotum and of elytron separately arcuate in dorsal view, metepisternal suture impunctate, more or less distinctly arcuate, and elongate basal pits of first abdominal ventrite not extended apically by striae. Aedeagus (Figs 78, 79) 0.38 - 0.41 mm long. Median lobe with moderately thick basal bulb and slender, curved apical portion. Median lobe tapering in lateral view, weakly narrowed with wide apical margin in dorsal view. Tip pointed (lateral view). Ventral wall of apical portion concave apically, notched medially. Valves symmetrical. Internal sac with protruding flagellum joined to flat, L-shaped sclerite (dorsal view) bearing wide and narrow apophysis. Basal portion of internal sac lacking membranous papillae or spinose structures. Ejaculatory duct traceable between basal orifice and base of sclerites. Parameres rather wide, with apical portion abruptly narrowed and curved internally, sinuate in lateral view, almost straight (apex excepted), at base barely enlarged, in dorsal view.

**Type material.** See CORNELL, 1967: 9.

Material examined, 24 males: UNITED STATES: 1, Alabama; 2, Mississippi; 3, New Jersey; 2, North Carolina; 14, Oklahoma; 1, Texas; 1, Virginia.

**Distribution.** This rare species occurs from New Jersey to Alabama, west to Texas.

**Biology.** The specimens seen were collected in forest litter, sphagnum moss, yellow pine stump, debris from rock crevice, forest floor. Adults were present from May to November.

### ***Baeocera similis* sp.n.**

**Description.** Length 1.0 - 1.2 mm, width 0.65 - 0.75 mm. Body dark brown to black, elytra paler at apex. Antennomere 2 about as long as 3 and 4 combined, antennomere 3 much shorter than 4. Lateral contours of pronotum and of elytron separately arcuate in dorsal view. Pronotal microsculpture obsolete or barely visible at 90x magnification. Apical portion of scutellum exposed. Elytron with basal stria broadly interrupted in humeral area, elytral punctation very fine near base, similar to that on pronotum. Most of discal punctures coarser than those on pronotum.

Mesocoxal line with fine, round and laterally not extended marginal pits. Lateral portion of metasternum very finely punctured. Metepisternum wide, with impunctate, convexly rounded suture. First abdominal ventrite lacking microsculpture (90x magnification), with basal pits elongate. Aedeagus (Figs 80, 81) 0.37 mm long. Median lobe with moderately thick basal bulb and slender, curved apical portion, moderately narrowed apically, with broadly rounded apical margin in dorsal view. Ventral wall of apical portion of median lobe humped beyond level of ventral process, gradually narrowed toward apex in ventral view. Tip fairly stout, moderately curved. Valves symmetrical. Flagellum of internal sac very slender basally and apically, widened in middle. Base of flagellum joined to a stick-like sclerite, apex extruding from ostium. Membranes of internal sac lacking particular structures. Parameres almost straight, with moderately narrowed and somewhat curved apex in dorsal view, weakly arcuate in middle and tapering apically in lateral view.

**Type material.** Holotype, male: UNITED STATES: Oklahoma, Latimer Co., VI. 1988, K. Stephan, sifting forest litter (FSCA).

Paratypes, 10 males: UNITED STATES: 1, same data as holotype and 4, same data as holotype but XII.1987 (MHNG) and VIII - XI.1991 (KSC, USNM); 1, Alabama, Jefferson Co., Mountainbrook, 23.III.1988, G. Ostroy (CUIC); 1, Jefferson Co., Hoover, UV (light), 9.IX.1982, T. King (CMNC); 1, Arkansas, Saline Co., Woodson Lateral Rd. off Hwy 65, lot 77-13, berlese, 11.II.1977, R.T. Allen (SEMC); 1, Mississippi, Lucedale, 10.X.1929, H. Dietrich (CUIC); 1, Mississippi, Scott Co., Forest, 30.XI.1991, K. Stephan (KSC).

**Distribution.** This rare species has been found in Alabama, Arkansas, Mississippi and Oklahoma.

**Biology.** Adults were collected by sifting forest litter from March to December.

#### THE *nana* GROUP

#### ***Baeocera nana* Casey**

*Baeocera nana* CASEY, 1893: 521.

*Baeocera rubriventris* CASEY, 1900: 58.

*Eubaeocera nana*; CORNELL, 1967: 15.

**Description.** Length 0.90 - 1.20 mm. Body more or less dark reddish-brown to black, abdomen usually reddish and paler than thorax and elytra. Antennomere 3 shorter than 2 or 4. Lateral contours of pronotum and of elytron variable, continuously (Fig. 11), or separately arcuate in dorsal view. Pronotal microsculpture distinct, often visible at 50x magnification. Apical portion of scutellum exposed. Elytron with basal stria broadly interrupted. Elytral punctation like pronotal punctation, extremely fine, almost obsolete at 90x magnification. Mesocoxal line indistinctly subangulate, with row of marginal pits slightly elongated, extending laterally at least to tip of "mesepimeron", usually extending outward to, or past, middle of anapleural suture (Figs 12, 13). Lateral portion of metasternum very finely punctured. Metepisternum wide, with suture convexly arcuate, and usually distinctly punctured, rarely impunctate. First abdominal ventrite with barely visible microsculpture and with basal pits elongate, extended apicad by striae. Aedeagus (Figs 88, 89) 0.25 - 0.31 mm



long. Median lobe with apical edge of basal bulb overlapping slender apical portion. Latter moderately inclined, shorter than half the length of basal bulb and tapering; tip not curved, but pointed. Internal sac with very long, extruding portion of ejaculatory duct. Flagellum moderately wide, basally strongly curved to semicircular. Relatively short flagellar guide-sclerite distinct in dorsal view. Parameres straight and somewhat enlarged apically in dorsal view, weakly sinuate in lateral view.

**Type material.** For *B. nana* see CORNELL, 1967: 15. Lectotype of *B. rubriventris*, in the collection of USNM, is here designated. It bears the following labels: R.I. /Rhode Island/; 965126-2; Casey bequest 1925; Type USNM 45757 /red label/; *rubriventris* Csy.; a vial with body parts; parts on slide; and label Lectotype *Baeocera rubriventris* Csy det. K. Stephan 1990.

**Material examined.** 395: UNITED STATES: 3, Alabama; 1, Arkansas; 2, Connecticut; 1, District of Columbia; 29, Florida; 9, Georgia; 9, Illinois; 7, Indiana; 1, Iowa; 1, Kansas; 6, Kentucky; 4, Maryland; 9, Massachusetts; 1, Michigan; 62, Mississippi; 8, Missouri; 26, New Hampshire; 6, New Jersey; 3, North Carolina; 1, North Dakota; 10, Ohio; 152, Oklahoma; 1, South Carolina; 1, Tennessee; 1, Texas; 10, Virginia; 4, West Virginia: CANADA: 10, Ontario; 17, Quebec.

**Distribution.** This common species occurs throughout most of eastern North America; from Quebec to Florida, west to North Dakota, Oklahoma and Texas.

**Biology.** The species occurs in a broad range of habitats. Specimens were taken from forest floor litter, hard-wood litter, cypress log, mixed hard-wood conifer litter, flood debris, rotten wood, debris in hollow log, fungus ridden basswood, cabbage palm litter, and on fungi. Also in flight intercept traps in forest. Adults are present throughout the year. Recorded from slime mold by LAWRENCE & NEWTON, 1980:137; recorded from *Comatrachia typhoides*, *Stemonitis fusca*, *Badhamia affinis*.

**Remarks.** Two alternative sets of characters have been found in the material examined: In most specimens, the lectotype of *B. rubriventris* including, the metasternal suture is distinctly punctate, in combination with the laterally strongly extended row of the marginal pits of the mesocoxal line, and the always rufous abdomen. In the lectotype of *B. nana* and in several other specimens the metasternal suture and the margin of the "mesepimeron" are impunctate, in combination with the usually darker abdomen. Other characters, including the aedeagus with the shape of the sclerites of the internal sac are the same in all males examined. As the two "forms" do not exhibit any distinct distribution pattern, we prefer to retain the synonymy of *B. nana* and *B. rubriventris*, as proposed by CORNELL, 1967.

#### THE *compacta* GROUP

##### ***Baeocera compacta* sp.n.**

**Description.** Length 1.45 - 1.55 mm, width 0.95 - 1.05 mm. Head and thorax blackish, elytron very dark brown with paler apical portion. Abdomen about as dark as most of elytral disc. Lateral contours of pronotum and elytron continuously arcuate in dorsal view (Fig. 55). Antennomeres 2, 3, and 4 each about of same length. Pronotum with strongly curved lateral margin in lateral view. Pronotal microsculpture



obsolete. Scutellum completely covered. Elytron with complete basal stria; lateral contour arcuate in dorsal view; discal punctation very fine, similar to that of pronotum. Mesocoxal line parallel to coxa, margined by round pits extending laterally to tip of "mesepimeron". Lateral portion of metasternum very finely punctured. Metepisternum moderately wide, with straight, impunctate suture (Fig. 55a). First abdominal ventrite not microsculptured, with round basal pits. Aedeagus (Figs 90, 91) 0.50 mm long. Median lobe slender, with apical portion about as long as basal bulb, moderately inclined, tapering, with weakly curved and pointed tip; ventral wall almost evenly arcuate, bearing low tubercle, not notched above ventral process. Internal sac with flagellum extruding apically, widened and circular basally. Parameres strongly expanded basally, sinuate and distinctly narrowed toward apex in dorsal view, almost straight and weakly narrowed apically in lateral view.

**Type material.** Holotype, male: UNITED STATES: Florida, Monroe Co., Leyton, Long Key, Ber. 225, 8.VIII.1974, S.Peck (CNCI).

Paratypes, 2 females: same data as holotype (CNCI).

**Distribution.** Florida Keys.

**Biology.** The specimens were taken in a ground litter sample from hardwood hammock forest.

**Remarks.** This species may be readily recognized by the aedeagal characters, especially by the strongly expanded parameral base, in combination with the circular, widened base of the flagellum and the ventrally tuberculate apical portion of the median lobe. The general body shape is similar to that of *B. robustula*. The strongly curved lateral pronotal margin, as seen in lateral view, is diagnostic.

#### THE *humeralis* GROUP

##### ***Baeocera humeralis* Fall**

*Baeocera humeralis* FALL, 1910: 116.

*Baeocera humeralis*; HATCH, 1957: 281.

*Eubaeocera humeralis*; CORNELL, 1967: 13.

**Description.** Length 1.45 - 1.65 mm. Head and pronotum dark brown to black, elytron entirely reddish or dark with reddish basal and apical spots. Antennomere 3 shorter than 2 or 4. Lateral contours of pronotum and of elytron variable, continuously or separately arcuate in dorsal view. Pronotal microsculpture absent. Scutellum visible. Elytron with basal stria complete (Fig. 14), sometimes faint but traceable in humeral area. Elytral punctation very fine, consisting of well delimited punctures, coarser than pronotal punctures. Mesocoxal line parallel to coxa, with marginal pits rather coarse, rounded and extended laterally along anapleural suture past middle of "mesepimeron" (Fig. 15). Lateral portion of metasternum very finely punctured. Metepisternum narrow, with suture impunctate and straight. First abdominal ventrite distinctly microsculptured at 50x magnification, basal pits coarse, elongate, extended apically by striae. Aedeagus (Figs 92, 93) 0.58 - 0.63 mm long. Median lobe with wide, stout, curved apical portion. Apex of median lobe pointed (lateral view), covered by single valve. Ventral wall of apical portion almost evenly

arcuate. Internal sac bearing slender central sclerites joined to membranes covered by spinose structures. Parameres slender, weakly sinuate, moderately enlarged basally and apically in lateral view, almost parallel-sided in dorsal view.

**Type material.** See CORNELL, 1967: 13.

**Material examined.** 102 specimens: UNITED STATES: 38, Arizona; 4, Colorado; 6, Idaho; 30, New Hampshire; 4, New Mexico; CANADA: 19, British Columbia; 1, Manitoba.

**Distribution.** This species occurs from southern Arizona north to British Columbia, east to Manitoba and New Hampshire.

**Biology.** Label information indicates that the species inhabits forest litter. Also in rotten wood, litter along stream, under conifer bark, and in flight intercept traps. Specimens were captured from May to September.

**Remarks.** *Baeocera humeralis* is the only species in the study area with a distinct colour pattern. However, those specimens lacking the reddish maculae may be readily recognized by the combination of other external characters.

#### THE *irregularis* GROUP

##### ***Baeocera irregularis* Champion**

*Baeocera irregularis* CHAMPION, 1913: 70.

*Sciatrophes irregularis*; LÖBL, 1976: 209.

**Description.** Length 2.0 - 2.15 mm. Body dark reddish-brown, with pronotum darker, brownish-black to black. Antennomere 3 almost as long as 2 or 4. Lateral contours of pronotum and of elytron separately arcuate in dorsal view. Pronotum not microsculptured. Scutellum not visible. Elytron with complete basal stria. Elytral punctation very coarse from base to middle or to apical third, almost obsolete on apical third (Fig. 33). Mesocoxal line subparallel to coxa, with marginal pits rounded, extended laterally beyond "mesepimeron". Lateral portion of metasternum very finely punctured. Metepisternum moderately wide, with somewhat sinuate and distinctly punctate suture (Fig. 34). First abdominal ventrite not microsculptured, with very coarse, round or barely elongate basal pits. Aedeagus (Figs. 94, 95) 0.92 mm long. Median lobe with rather thick basal bulb and slender, in lateral view sinuate apical portion; tip slender, rounded in dorsal view, pointed and curved in lateral view. Valves somewhat asymmetrical, situated proximally. Flagellum of internal sac stout, fairly long, apically thickened and extruded; flagellar guide-sclerite flattened, apically thickened, joined with curved slender basal sclerite. Parameres moderately curved and evenly wide.

**Type material.** See LÖBL, 1976: 211.

**Material examined.** See data in LÖBL, 1976: 211.

**Distribution.** Arizona and Mexico.

**Remarks.** *Baeocera irregularis* is the only large western species having elytral punctation as described. A similar, closely related species (*B. wheeleri* Löbl) occurs in Mexico. It exhibits almost the same external diagnostic characters, but differs by the shape of the parameres, of the apical portion of the median lobe and of the sclerites of the internal sac.

THE *deflexa* GROUP**Baeocera deflexa** Casey

*Baeocera deflexa* CASEY, 1893: 517; Casey, 1900: 57.

*Eubaeocera deflexa*; CORNELL, 1967: 9

**Description.** Length 2.2 - 2.6 mm. Body dark brown to black. Antennomeres 2, 3, and 4 of almost same length. Lateral contours of pronotum and of elytron separately arcuate in dorsal view (Fig. 21). Pronotal microsculpture more or less distinct, sometimes well visible at 50x magnification. Pronotal disc moderately arcuate in lateral view (Fig. 23). Scutellum completely covered by pronotal lobe. Elytron with basal stria broadly interrupted in humeral area. Most elytral punctures very fine, somewhat coarser than pronotal ones, some punctures eventually notably larger. Mesocoxal line moderately convex, with marginal pits coarse, rounded, somewhat extended laterally, not reaching tip of "mesepimeron". Lateral portion of metasternum very finely punctured. Metepisternum wide, parallel-sided, with straight, punctured suture (Fig. 22). First abdominal ventrite with almost obsolete microsculpture (90x magnification). Aedeagus (Figs 96, 97) 0.94 - 1.03 mm long. Median lobe with thick basal bulb and apically protruding ventral process; apical portion with ventral wall almost straight up to curved, pointed tip. Flagellum of internal sac slender, very long, enlarged and curved basally, extruding apically, abruptly enlarged in center, forming a sharp tooth. Flagellar guide-sclerite fairly stout, with bidentate apex. Parameres sinuate in dorsal view, widest before middle, from there gradually narrowed apically in lateral view. Base of parameres distinctly enlarged.

**Type material.** See CORNELL, 1967: 11.

**Material examined.** 128 specimens: UNITED STATES: 12, Arkansas; 2, Colorado; 1, Connecticut; 7, Kentucky; 1, Illinois; 1, Louisiana; 1, Maine; 1, Massachusetts; 14, New York; 3, North Carolina; 22, Ohio; 29, Oklahoma; 1, Pennsylvania; 2, South Carolina; 1, Tennessee; 1, Vermont; 4, Virginia; 3, Wisconsin; CANADA: 1, New Brunswick; 13, Ontario; 8, Quebec.

**Distribution.** This fairly common species occurs from New Brunswick south to Louisiana, west to Wisconsin and Colorado. With the Colorado record, from Lime Creek, 9500ft, 6 mi S. Molas Pass, 29.VII.1973, J. M. Campbell, which is about 1000 km westward of the nearest localities, the species seems to be represented by an isolated population west of the 100th meridian.

**Biology.** The species has been sifted from hard wood litter and occasionally from pine litter. Adults were collected throughout the year.

**Remarks.** *Baeocera deflexa* is the only of the larger eastern species with the basal stria of the elytron broadly interrupted and the lateral pronotal margin sharply deflected downward near the hind angle.

**Baeocera flagellata** (Löbl)

*Eubaeocera flagellata* LÖBL, 1976: 207.

**Description.** Length 2.40 - 2.55 mm. Body brown-black to black. Antennomere 2 about as long as 3 or 4. Lateral contours of pronotum and of elytron



separately arcuate in dorsal view (Fig. 27). Pronotal microsculpture very fine, barely visible at 90x magnification. Scutellum completely covered by pronotal lobe. Elytron with complete basal stria. Elytral punctation coarser than that of pronotum, fairly regular and visible at 12x magnification. Mesocoxal line parallel to coxa, with marginal pits rounded, extended to tip of "mesepimeron". Lateral portion of metasternum very finely punctured. Metepisternum moderately wide, parallel-sided or moderately narrowed anteriorly, with straight punctured suture (Fig. 28). First abdominal ventrite with microsculpture visible at 90x magnification, and with elongate basal pits. Aedeagus (Figs 98, 99) 1.12 - 1.26 mm long. Median lobe narrow, relatively slender, with rather large, protruding ventral process of basal bulb. Apical portion of median lobe with weakly sinuate ventral wall, tip pointed, weakly curved. Flagellum slender, extruding from ostium, basally curved and strongly thickened. Flagellar guide-sclerite apically bidentate, almost straight, relatively narrow. Parameres almost straight, narrowed at apex, not enlarged basally in lateral view.

**Type material.** See LÖBL, 1976: 208.

**Material examined.** 76 specimens: UNITED STATES: 74, Arizona; MEXICO: 1, Mexico, Mor., 7 mi S Tres Cumbres, 7.VII.1975, Q. D. Wheeler (CUIC); 1, Mexico, Dgo, 26 mi W Durango, 13.VII.1975, Q. D. Wheeler (CUIC).

**Distribution.** Arizona and Mexico. This uncommon species is found in southeastern Arizona at high elevation.

**Biology.** *Baeocera flagellata* has been sifted from rotten wood, oak duff, and thicker layers of forest litter.

**Remarks.** *Baeocera flagellata* and *B. irregularis* are the only two larger western species lacking a visible scutellum. The former has finer elytral punctuation, distinct even near the apex, while the latter has coarser elytral punctation, which is obsolete near the apex.

### ***Baeocera valida* (Löbl)**

*Sciatrophes valida* LÖBL, 1976: 209.

**Description.** Length 2.25 - 2.40 mm. Body brownish-black to black, usually elytra paler toward apex. Antennomeres 3 and 4 about of same length, somewhat shorter than antennomere 2. Lateral contours of pronotum and of elytron separately arcuate in dorsal view (Fig. 31). Pronotal microsculpture obsolete at 90x magnification. Lateral margin of pronotal angle S-shaped apically in oblique view (Fig. 32). Scutellum visible. Basal stria of elytron uninterrupted. Elytral punctation coarse, distinct at 12x magnification; scattered larger punctures present. Mesocoxal line convex, marginal pits rounded, extended laterally to tip of "mesepimeron", one or two of pits situated beyond "mesepimeron". Lateral portion of metasternum very finely punctured. Mesepisternum wide, parallel-sided, with straight, punctured suture. First abdominal ventrite lacking microsculpture, with basal pits rounded. Aedeagus (Figs 100, 101) 1.18 - 1.26 mm long. Median lobe elongate, relatively slender, notably asymmetrical, with flattened, laterally curved apex. Ventral wall of apical portion irregular, sinuate. Ventral process small, not protruding. Flagellum fairly thin,



sinuate, apically extruded. Flagellar guide-sclerite flattened, wide, curved basally. Central part of internal sac bearing small sclerites joined to flagellum and to flagellar guide-sclerite. Parameres slender, weakly sinuate, with enlarged middle in lateral view, moderately curved apically in dorsal view.

**Type material.** See LÖBL, 1976: 209.

**Material examined.** 10 specimens: UNITED STATES: 4, Arizona, Graham Co., Pinaleno Mts., Wet Canyon, 5.IX.1976, D. S. Chandler; 1, Arizona, Cochise Co., Chiracahua Mts., 29. VI. 1949, D. J. & J. N. Knull; 1, Arizona, Pinal Mts., Gila Co., Pioneer Pass, 25.VII.1976, J. M. Campbell; 1, Arizona, Huachuca Mts., Miller Cyn., 7200-7800 ft, 4.VIII.1979, A. Smetana; 2, New Mexico, Las Vegas, Barber & Schwarz; 1, Colorado, Colorado Springs, 7000 ft, Wickham.

**Distribution.** Arizona, New Mexico, and Colorado.

**Biology.** This species is confined to habitats at high elevations. The specimens from Wet Canyon were sifted from litter along a creek, those from Miller Canyon from oak leaf litter in a mixed deciduous and coniferous forest.

**Remarks.** *Baeocera valida* is readily recognized by its large size and the S-shaped lateral margin of pronotal hind angle, as seen in oblique view.

#### THE *congener* GROUP

#### **Baeocera cerbera** (Cornell)

*Eubaeocera cerbera* CORNELL, 1967: 13.

**Description.** Length 1.55 - 1.75 mm. Body dark reddish-brown to black, elytra apically paler. Antennomeres 2 and 4 about of equal length, antennomere 3 distinctly shorter. Lateral contours of pronotum and of elytron separately arcuate in dorsal view. Pronotal microsculpture usually visible at 50x magnification, sometimes very fine to obsolete. Scutellum completely covered by pronotal lobe. Elytron with complete basal stria, elytral punctation very fine, similar to that of pronotum, with few additional large, fairly coarse punctures. Mesocoxal line moderately convex, with marginal pits rounded, more or less extended laterally along anapleural suture. Lateral portion of metasternum very finely punctured. Metepisternum moderately wide, parallel-sided or narrowed anteriorly, with straight impunctate suture. First abdominal ventrite not microsculptured at 90x magnification, with coarse, rounded basal pits. Aedeagus (Figs 102, 103) 0.57 - 0.67 mm long. Median lobe with thick basal bulb, long and fairly asymmetrical apical portion; ventral processes protruding. Flagellum thick and wide; basal curved portion strongly widened. Flagellar guide-sclerite with left arm long, hook-shaped, pointed at tip, right apophyse robust. Parameres conspicuously asymmetrical, with weakly arcuate ventral ridge, each bearing membranous rim on inner side of apical half. Right paramere almost straight with unevenly shaped margin in dorsal view, left paramere arcuate beyond widened base; both parameres widest in middle portion in lateral view; membranous lobe absent.

**Type material.** See CORNELL, 1967: 13.

**Material examined.** 22 specimens: UNITED STATES, Arizona: 4, Cochise Co., Chiracahua Mts., Greenhouse Cyn., 6400 ft, 2.VIII.1979 (CNCI); 1, Cochise Co., Dagoon Mts., Slavin Gulch, 18. VIII.1974, K. Stephan (FSCA); 3, Graham Co., Pinaleno Mts., Noon

Ck., 5200 ft, 13. II.1973 (OSUC); 1, Graham Co., Pinaleno Mts., Marjilda Cyn., 4350 ft, 3. V. 1977, C. A. Janus-Chandler (OSUC); 2, Pima Co., Mt. Lemmon Hwy, 7600 ft, 3. X. 1971 (OSUC); 11, Santa Cruz Co., Santa Rita Mts., Madera Cyn., 11. and 15. X. 1971 and 3. and 8.XI.1971 (USNM).

**Distribution.** Mountains of southeastern Arizona.

**Biology.** Specimens of this species were taken by sifting duff and litter in oak forest.

**Remarks.** The concept of this species is based on the study of the single paratype of *B. cerbera*. The medium size, elongate-oval form, a few large shallow punctures on the otherwise very finely punctured elytra, the widely spaced punctures along anapleural suture, and the absence of a visible scutellum, will separate this species from all others, *B. speculifer* excepted. The contours of the body are similar to Fig. 54.

### **Baeocera congener** Casey

*Baeocera congener* CASEY, 1893: 517.

*Eubaeocera congener*; CORNELL, 1967: 11.

**Description.** Length 1.7 - 2.2 mm. Body black-brown to black, with wide apical portion of elytra usually notably paler. Antennomere 3 distinctly shorter than 2 or 4. Lateral contours of pronotum and of elytron separately arcuate (Fig. 18). Pronotum usually without visible microsculpture at 90x magnification, evenly arcuate apically in lateral view (Fig. 20). Scutellum completely covered by pronotal lobe. Basal stria of elytron uninterrupted. Elytron with discal punctation almost evenly fine, similar to that of pronotum. Mesocoxal line parallel to coxa, with marginal pits rounded, extended laterally to tip of "mesepimeron". Lateral portion of metasternum very finely punctured. Metepisternum wide, parallel-sided, with straight, punctured suture. First abdominal ventrite with microsculpture not visible or hardly visible (90x magnification), basal pits rounded or barely elongate (Fig. 19). Aedeagus (Figs 104, 105) 0.68 - 0.83 mm. Median lobe with thick basal bulb, apical portion of median lobe wide and relatively short. Ventral processes indistinct. Flagellum thick, with moderately widened base. Left arm of flagellar guide-sclerite hook-shaped, gradually narrowed apically in dorsal view, tip acute in lateral view; right apophyse robust. Parameres symmetrical except near strongly widened base, bearing membranous rim on inner side, left paramere strongly, right paramere weakly sinuate and narrowed apically in dorsal view; both with arcuate ventral ridge in ventral view, and almost evenly wide, subangulate in middle portion, with ventral margin sinuate, dorsal margin arcuate in lateral view.

**Type material.** See CORNELL, 1967: 11.

**Material examined.** 125 specimens: UNITED STATES: 1, Alabama; 1, Arkansas; 5, Arizona; 1, District of Columbia; 1, Connecticut; 4, Florida; 1, Indiana; 1, Illinois; 15, Kansas; 1, Massachusetts; 3, Michigan; 17, Missouri; 2, Montana; 4, New Mexico; 12, North Dakota; 3, Pennsylvania; 40, Oklahoma; 1, South Carolina; 2, Tennessee; 2, Texas; 1, Virginia; 2, Wyoming; CANADA: 4, Ontario.

**Distribution.** *Baeocera congener* is the most wide-spread member of the larger species. It occurs from Ontario to Alabama, west to Montana and Arizona.

In Montana it follows the Missouri River as far as Helena. The New Mexico specimens come from the Sangre de Cristo Range which gives rise to the Canadian River. This river is part of the Mississippi drainage basin. The species may turn up in collections from the eastern slopes of the Rocky Mountains.

**Biology.** The species has been taken in a variety of forest litter. Adults were collected throughout the year.

**Remarks.** *Baeocera congener* may be easily distinguished from the similar *B. falsata* by the evenly arcuate dorsal convexity of the pronotum (Fig. 18), while it drops off sharply near the apex, giving a humped look in *B. falsata* (Fig. 26).

### **Baeocera falsata** Achard

*Baeocera falsata* ACHARD, 1920: 307; LÖBL, 1987: 315

*Baeocera concolor* CASEY, 1900; nec (*Scaphidium concolor*) FABRICIUS, 1801.

**Description.** Length 2.2 - 2.6 mm. Body brownish-black to black. Antennomeres 2, 3, and 4 almost of same length. Lateral contours of pronotum and of elytron separately arcuate in dorsal view (Fig. 24). Pronotal disc dropping off sharply near apex, giving a humped look (Fig. 26). Pronotal microsculpture distinct at 50x magnification. Scutellum not visible. Elytron with uninterrupted basal stria. Elytral punctation fine, notably coarser than that of pronotum, with several punctures distinctly enlarged. Mesocoxal line parallel with coxa, with marginal pits rounded and not extended laterally. Lateral portion of metasternum very finely punctured. Metepisternum moderately wide, parallel-sided, with straight, punctate suture (Fig. 25). First abdominal ventrite with microsculpture distinct at 90x magnification, basal pits rounded. Aedeagus (Figs 106, 107) 0.87 - 1.02 mm long. Median lobe with fairly long, moderately wide apical portion. Basal bulb with apically protruding left wall. Ventral processes inconspicuous. Flagellum of internal sac thick, moderately widened basally. Left arm of flagellar guide-sclerite long, hook-shaped and tapering, bearing small, subapical denticle distinct in dorsal view. Parameres with straight ventral and lateral ridges and narrow membranous rim along inner edge; lateral margins almost straight, at apex weakly widened, more or less sinuate in dorsal view; widest in middle, moderately curved and narrowed apically in lateral view.

**Type material.** See ICZN 1982: 186.

**Material examined.** 30 specimens: UNITED STATES: 1, Kentucky; 2, New York; 15, Oklahoma; 1, South Carolina; 1, Virginia; CANADA: 8, Ontario; 2, Quebec.

**Distribution.** This species occurs sporadically, from Ontario south to South Carolina, west to Michigan and Oklahoma.

**Biology.** *Baeocera falsata* seems to prefer rather wet habitats. It has been taken in leaf litter at the edge of logs, by sifting sphagnum, damp leaf litter, and pine duff. In Oklahoma it occurs together with *B. deflexa*. Adults have been found in February, and April through December. They possibly occur throughout the year.

**Remarks.** *B. falsata* may be confused with *B. congener*. For a discussion of the distinguishing characters, see remarks under that species.



***Baeocera impunctata* sp.n.**

**Description.** Length 1.8 -2.0 mm. In external and aedeagal characters very similar to *B. congener* (Figs 54, 114,115). It may be readily distinguished by the exposed tip of the scutellum, and it differs also by slightly finer elytral punctation. Aedeagus 0.73 - 0.77 mm long. Flagellum with single basal lobe in lateral view. Flagellar guide-sclerite not narrowed or weakly narrowed apically, with bidentate tip. Apical two thirds of parameres evenly wide and weakly arcuate in dorsal and ventral view, base of parameres symmetrical; each paramere widest in middle, apically narrowed, with more or less arcuate ventral margin in lateral view.

**Type material.** Holotype, male: UNITED STATES: Arizona, Pantano Wash 3 mi N Mt. View, Pima Co., 27.X.1971, D. S. Chandler (OSUC).

Paratypes, 9: UNITED STATES: Arizona: 1 male, 1 female, same data as holotype; 1 female, Tucson, Hubbard & Schwarz (USNM); 1 male, Madera Cn, Pima Co. 11.VIII.1971, R. Lenczy (USNM); 1 male, Santa Catalina Mts., Molino Basin, 24.VII.1972, R. Gordon (USNM); 3 males, 1 female, New Mexico, Las Vegas, Barber & Schwarz coll.(USNM).

**Distribution.** Arizona and New Mexico.

**Biology.** This species is found by sifting litter in moist places at medium elevation.

***Baeocera inexpectata* sp.n.**

**Description.** Length 2.1 mm. External characters as those in *B. congener*. Aedeagus (Figs 108 to 110) 0.83 mm long. Apical portion of median lobe slender, long, extended somewhat beyond tip of parameres, with ventral margin weakly arcuate, tip of pointed. Flagellum (base excepted) relatively thin in dorsal view, gradually narrowed apically in lateral view. Left arm of flagellar guide-sclerite almost evenly wide, with simple, pointed tip curved dorsally in lateral view; right apophyse moderately large. Parameres weakly asymmetrical, with arcuate outer margin in dorsal view, irregularly arcuate dorsal margin and almost straight ventral margin in lateral view; inner margin of parameres extended by membranous lobe widest in middle.

**Type Material.** Holotype, male: CANADA, Saskatchewan, Saskatoon, 3.X.1923, K.M.King (CNCI).

**Distribution.** Saskatchewan.

**Remarks.** This is one of the smaller species of the *congener* group. It may be recognized by the parameres bearing a membranous lobe and by the shape of the sclerites of the internal sac.

***Baeocera lencyi* sp.n.**

**Description.** Length 1.7 mm, width 1.1 mm. Head, thorax and basal portion of elytra very dark reddish-brown, elytra gradually paler apically. Antennomeres 3 and 4 of about same length, each somewhat shorter than 2. Lateral contours of pronotum and elytron separately arcuate in dorsal view (Fig. 52). Pronotal microsculpture visible at 24x magnification. Scutellum completely covered by



pronotal lobe. Elytron with uninterrupted basal stria; discal punctation fine, rather irregular in basal half, punctures on apical portion finer than those on center, almost as small as pronotal punctures; large scattered discal punctures absent. Mesocoxal line parallel to coxal margin, with marginal pits elongate, extended laterally to tip of "mesepimeron". Lateral portion of metasternum very finely punctured. Metepisternum moderately wide, with punctate, almost straight suture. Basal pits of first abdominal ventrite strongly elongate, each extended apically by a stria (Fig. 53); microsculpture of first ventrite hardly visible at 90x magnification. Aedeagus (Figs 111 to 113) 0.60 mm long. Median lobe with fairly thick apical portion, tip hardly curved, ventral margin sinuate in lateral view. Ventral process small, not protruding. Flagellum wide, curved and conspicuously enlarged basally, with slender, strongly sclerotized apex. Flagellar guide-sclerite with long, gradually narrowed left arm, curved at tip in lateral view. Parameres strongly asymmetrical, each strongly enlarged, with external margin evenly arcuate.

**Type material.** Holotype, male: UNITED STATES: Arizona, Santa Cruz Co, Santa Rita Mts., Madera Canyon, R. Lenczy (USNM).

**Distribution.** Arizona.

**Biology.** Dr. Lenczy never collected at higher elevations nor did he sift. Hand-picking, UV light and sweeping were his favorite collecting methods (KS). It may therefore be assumed that the specimen was taken in the oak-zone of the Madera Canyon, by one of these methods.

**Remarks.** The single specimen of *B. lenczyi* has somewhat rugose elytral disc. This is likely an anomaly instead of a species character. The species may be readily distinguished from other members of the *congener* group by the extended basal punctures of the first ventrite and by the conspicuously large parameres of the aedeagus. It differs from the sympatric *B. cerbera* by the absence of the scattered large punctures on the elytral disc. The species is named in honor of the late, long time friend of the junior author, Rudolph Lenczy, MD, who devoted most of his later years to beetles.

### ***Baeocera securiforma* (Cornell)**

*Eubaeocera securiforma* CORNELL, 1967: 13.

**Description.** Externally very similar to *B. congener*, on average larger, and with antennomere 3 longer and pronotal and abdominal microsculpture usually distinct at 50x magnification. Length 2.0 - 2.35 mm, antennomere 3 usually somewhat shorter than 4, rarely as long as 4, and as long as or somewhat shorter than antennomere 2. Aedeagus (Figs 116, 117) 0.88 - 0.98 mm long. Median lobe with long, relatively slender apical portion. Basal bulb not protruding above base of parameres. Flagellum wide, with indistinct, membranous apical portion. Left arm of flagellar guide-sclerite curved, apically not or weakly narrowed, with abruptly bent tip (lateral view), apex in lateral view usually distinctly securiform. Right apophyse indistinct. Parameres asymmetrical, with hardly widened bases, right paramere almost straight or weakly sinuate in dorsal view, left paramere distinctly sinuate. Dorsal and

inner side of both parameres with short ridge. Subbasal portion of parameres narrow, apical half to two thirds widened, with widest point in middle or before middle portion (lateral view). Tip of parameres asymmetrical in lateral view, that of right paramere bearing minute point curved outwardly or ventrally.

**Type material.** See Cornell, 1967:13.

**Material examined,** 23 specimens: UNITED STATES: 1, Florida; 2, Massachusetts; 1, Manitoba; 3, New York; 4, Oklahoma; 1, Virginia; CANADA: 1, Ontario; 10, Quebec.

**Distribution.** This species inhabits all of eastern North America, but its occurrence is sporadic.

**Biology.** The habits seem to be the same as those of *B. congener*.

**Remarks.** The species may be distinguished by the shape of the parameres, in combination with the shape of the flagellar guide-sclerite.

### ***Baeocera speculifer* Casey**

*Baeocera speculifer* CASEY, 1893: 518.

*Eubaeocera congener*; CORNELL, 1967: 11.

**Description.** Length 1.7 mm. In external characters very similar to *B. cerbera*. Aedeagus (Figs 120, 121) 0.57 mm. Apical portion of median lobe slender, strongly inclined, with almost straight ventral margin in lateral view, and pointed, straight tip. Flagellum in dorsal view relatively slender, with moderately widened basal portion. Flagellar guide-sclerite with left arm bidentate at apex; somewhat narrowed near tip in dorsal view, with fairly long, regularly curved and evenly thick apical portion in lateral view; right apophyse short, inconspicuous. Parameres symmetrical, evenly wide and moderately curved in dorsal view (base excepted), widest near middle, apically gradually narrowed in lateral view.

**Type material.** Lectotype, male, in the collection of the United States National Museum, Washington, D.C., is here designated. It bears the following labels: 1a; *speculifer*; Casey bequest 1925; Type USNM 48748; 965126-11; *speculifer* Csy. det. K. Stephan 1990, and adequate lectotype designation label.

**Distribution.** Iowa.

**Remarks.** *Baeocera speculifer* may be distinguished from other species of similar size by the elytra having a few scattered large punctures, in combination with the aedeagal characters.

### ***Baeocera solida* sp.n.**

**Description.** Length 2.0 - 2.4 mm, width 1.30 - 1.60 mm. Body blackish-brown to black. Antennomere 3 somewhat shorter than 2 or 4. Lateral contours of pronotum and of elytron separately arcuate in dorsal view, lateral contour of pronotum subangulate (Fig. 29). Pronotal microsculpture distinct, usually visible at 24x magnification. Point of scutellum exposed. Elytron with complete, uninterrupted basal stria. Elytral punctation rather coarse, similar to that of pronotum, visible at 12x magnification. Mesocoxal line parallel to coxa, with marginal pits coarse, round and not extended laterally. Lateral portion of metasternum show coarse punctation, except

on area near apical margin. Metepisternum wide, narrowed anteriad, with straight or barely sinuate and punctured suture (Fig. 30). First abdominal ventrite distinctly microsculptured, with coarse, round basal punctures. Aedeagus (Figs 118, 119) 0.74 - 0.83 mm long. Median lobe with thick basal bulb, long, asymmetrically narrowed apical portion, and rather large ventral process. Tip of median lobe pointed, weakly curved, ventral margin irregular in lateral view. Flagellum wide, with strongly sclerotized basal margin and weakly sclerotized apex. Flagellar guide-sclerite with long, extruded left arm ending by simple, gradually narrowed and curved apex; right apophyse strongly developed. Parameres almost straight with somewhat sinuate outer and inner margins in dorsal view, incurved, widest beyond middle and tapering apically in lateral view. Base of parameres distinctly enlarged in lateral view.

**Type material.** Holotype, male: UNITED STATES: Arizona, Santa Rita Mts., Madera Cyn., 21.IX.1968, K. Stephan (FSCA).

Paratypes, 61, all from Arizona: 12, Huachuca Mts., Miller Cyn., 7200-7800ft, 4.VIII.1979, A. Smetana (CNCI); 2 Huachuca Mts., Carr Cyn., 23.VII.1976, J. M. Campbell (CNCI); 3, Huachuca Mts., Bear Saddle, 8100 ft, 5.VIII.1979 A. Smetana (CNCI); 9, Pinal Mts., Gila Co., Pioneer Pass, 1660m, 25.VII.1976 J.M.Campbell (CNCI); 1, Pima Co., Santa Catalina Mts., Spencer Cyn., 5.VIII.1985, 8000 ft, J. Pakaluk (JPIC); 2, Santa Catalina Mts., 8000 ft, 27.VII.1968, K. Stephan; 1, same but 16-VI-1966, K. Stephan; 1, same but 9000 ft, 4.IX.1968, K. Stephan; 1, Pima Co., Peppersauce Cyn., 25-I-1969, K. Stephan; 1, Mt. Lemmon Hwy., 7600 ft; 3.X.1971, D. S. Chandler, berlese oak duff (OSUC); 1, Pima Co., Bear Canyon on Mt. Lemmon Hwy., 3.X.1971, D. S. Chandler, oak-sycamore duff (OSUC); 2, Santa Cruz Co., Santa Rita Mts., Madera Canyon, 21.IX.1968, K. Stephan; 1, Madera Canyon, 11.VIII.1969, A. Smetana (MHNG) and 1, Madera Cyn. 5500 ft, 3.VII.1969, A. Smetana (CNCI); 1, Madera Canyon, 23.X.1971, D. S. Chandler, oak duff (OSUC); 2, Pajarito Mts., Sycamore Cyn., 24.VIII.1968, K. Stephan; 1, 3 mi. N Ruby, 23.III.1979, F. Werner, leaf litter (UAIC); 2, Cochise Co., Chiricahua Mts., Portal 5000 ft, 21.VII.1969, A. Smetana (MHNG, CNCI); 1, Chiricahua Mts., 8500 ft, 3.VIII.1969, K. Stephan; 1, same but 5.X.1968; 2, same but 7000 ft, 23.VI.1973; 1, same but 5000 ft, 18.X.1975; Chiricahua Mts., Sunny Flat Cpgd., 5200 ft, 29.VII.1979, A. Smetana (CNCI); Chiricahua Mts., Rucker Cyn, 1760m, 22.VII.1976, J. M. Campbell (CNCI); 2, Rustler Park, 14.VIII.1965, H. Dybas, pine floor litter near pine log (FMNH); 1, VII (no other data), (USNM); Texas Cyn., Dragoon Mts., 22.VII.1981, Olson & Burne (UAIC); Graham Co., Turkey Creek nr. Araviapa Canyon, 24-27.VI.1989, Y. Bousquet (CNCI); 1, Graham Co., Pinaleno Mts., Turkey Fla., 7200 ft, 27.VII.1969, A. Smetana (MHNG); 2, same but Wet Canyon, 11 & 30.IV.1977, D. S. Chandler, pine litter and under bark (OSUC); 1, 2mi. W Black Lake, Sitgreaves N.F. Navajo Co., 2240m, 14.VII.1976, J. M. Campbell (CNCI); 1, Greenly Co., White Mts., Hannegans Meadow, 14.X.1972, K. Stephan (all specimens collected by K.Stephan are in FSCA or KSC).

**Distribution.** Only known from the mountains of southern Arizona.

**Biology.** This species occurs in moist forest habitats at high elevations; it is found in various leaf-litter, such as oak, pine and sycamore.

**Remarks.** *Baeocera solida* cannot be confused with any other sympatric species. The peculiar pronotal shape is diagnostic.

### ***Baeocera youngi* (Cornell)**

*Scaphidium concolor* ERICHSON, 1845; nec (*Scaphidium concolor*) FABRICIUS, 1801: 576.

*Eubaeocera youngi* CORNELL, 1967: 11.

*Baeocera falsata*; LÖBL, 1987: 315.

**Description.** In external characters very similar to *B. congener*, in average larger, with pronotal and abdominal microsculpture usually distinct at x90x



magnification, and antennomere 3 somewhat longer. Length 2.15 - 2.5 mm. Antennomere 3 somewhat shorter than 4, antennomere 4 as long as 2. Aedeagus (Figs 122 - 124) 0.84 - 1.18 mm long. Median lobe with long and slender apical portion, tip pointed, ventral margin sinuate in lateral view. Basal bulb lacking apical protuberance. Internal sac with flagellum moderately wide, not or weakly narrowed. Flagellar guide-sclerite long, with left arm relatively slender, apically narrowed and pointed, with small subapical denticle; right apophyse small, inconspicuous. Parameres weakly asymmetrical, each with strong, basally bifid ventral ridge; outer margin more or less sinuate and base moderately widened in dorsal view; each paramere moderately curved, widest in middle portion, basally and apically distinctly narrowed in lateral view.

**Type material.** See CORNELL, 1967: 11.

**Material examined.** 40 specimens: UNITED STATES: 1, Louisiana; 1, Minnesota; 1, Oklahoma; 4, Texas; CANADA: 2, Manitoba; 1, Nova Scotia; 21, Ontario; 5, Quebec, 4, Saskatchewan.

**Distribution.** This species is confined to northeastern and central North America. It seems to be absent from the Southeast.

**Biology.** The specimens have been sifted from moist hard-wood litter.

**Remarks.** The synonymy of *B. youngi* and *B. falsata* (LÖBL, 1987) was based on examination of the holotype of *B. youngi* which is in poor condition. Study of additional material confirms the validity of *B. youngi*: both species may be readily distinguished by the shape of both the parameres and the median lobe.

#### THE *abdominalis* GROUP

##### ***Baeocera abdominalis* Casey**

*Baeocera abdominalis* CASEY, 1900: 58.

*Eubaeocera abdominalis*; CORNELL, 1967: 6.

**Description.** Length 1.0 - 1.1 mm. Body dark reddish-brown to black, apical portion of elytra paler. Antennomere 3 as long as 4, somewhat shorter than 2. Lateral contours of pronotum and of elytron continuously arcuate in dorsal view (Fig. 37). Pronotal microsculpture distinct at 50x magnification. Scutellum not visible. Elytron with basal stria broadly interrupted in humeral area. Elytral punctation almost obsolete at 90x magnification. Mesocoxal line somewhat convex or parallel to coxa, with marginal pits rounded, extended laterally to tip of "mesepimeron" (Fig. 38). Lateral portion of metasternum very finely punctured. Metepisternum wide, parallel-sided, with straight, impunctate suture. First visible abdominal ventrite with distinct microsculpture at 90x magnification, and with rounded, coarse basal pits. Aedeagus (Figs 125, 126) 0.37 - 0.40 mm long. Median lobe slender, with strongly keeled basal bulb. Apical portion of median lobe straight, apically moderately narrowed, much longer than basal bulb; apex curved and extended at left side. Valves symmetrical. Ventral process small. Internal sac with distinct, protruding ejaculatory duct and slender, basally enlarged sclerite. Parameres sinuate in dorsal and lateral views, with narrow apex, each bearing single apical seta.



Type material. See CORNELL, 1967: 6.

Material examined, 17 specimens: UNITED STATES: 1, Georgia; 2, Mississippi; 9, New Jersey; 3, North Carolina; 1, Texas; 1, Virginia.

Distribution. This apparently rare species occurs from Maine to Georgia, westward to Texas.

Biology. The only available habitat record is pine litter. The few specimens seen were collected in February, March, August, October and November.

Remarks. See discussion under *B. robustula*.

### **Baeocera robustula** Casey

*Baeocera robustula* CASEY, 1893: 519.

*Eubaeocera kingsolveri* CORNELL, 1967: 6 - **syn. nov.**

Description. Length 1.20 - 1.35 mm. Body very dark brown to black. Antennomere 3 as long as 4, shorter than 2. Lateral contours of pronotum and of elytron continuously arcuate in dorsal view (Fig. 43). Pronotal microsculpture distinct at 50x magnification. Scutellum not visible. Elytron with complete, uninterrupted basal stria. Elytral punctation extremely fine, as fine as or finer than that on pronotum, almost obsolete at 90x magnification. Mesocoxal line parallel to coxa, with marginal pits elongate and extended laterally to tip of "mesepimeron". Lateral portion of metasternum very finely punctured. Metepisternum wide, with impunctate, barely curved suture. First visible abdominal ventrite lacking microsculpture (90x), with basal pits strongly elongate (Fig. 44). Aedeagus (Figs 127, 128) 0.50 - 0.55 mm long. Median lobe weakly narrowed apically, with basal keel very large, ventral process small, and apical portion bifid, longer than basal bulb, barely narrowed apically in dorsal view. Dorsal valve single. Internal sac with slender flagellum joined to robust elongate sclerite. Parameres somewhat sinuate, wider in lateral view than in dorsal view, each bearing two apical setae.

Type material. The lectotype of *B. robustula* is here designated. It is in the collection of the United States National Museum, Washington, D.C. and bears the following labels: Ala; Casey bequest 1925; Casey determ. *robustula*-2; and Lectotype *Baeocera robustula* Csy. det. K. Stephan 1990 (USNM). For *E. kingsolveri* see CORNELL, 1967: 6.

Material examined, 108 specimens: UNITED STATES: 4, Arkansas; 4, Florida; 7, Mississippi; 9, New Jersey; 1, Ohio; 82, Oklahoma; 1, Tennessee.

Distribution. This species occurs from southern New Jersey to Florida, west to Oklahoma.

Biology. The species is not rare but is under-represented in collections. In eastern Oklahoma it is often found in decaying centers of large clumps of perennial grasses, especially those near water. Label data mention also sphagnum moss, swamp debris, sifted wood chips. Adults were found every month of the year, except in July and September. The majority are from January to March.

Remarks. *Baeocera robustula* and *B. abdominalis* share a round-oval body outline, minute size, and the scutellum completely covered by pronotum. The basal stria of the elytron is complete, and the pits along the mesocoxal line are large and elongate in *B. robustula*, while *B. abdominalis* has the basal stria of the elytron

incomplete, and the pits along the mesocoxal line are small and round. Mature specimens of *B. robustula* are usually darker than those of *B. abdominalis*.

### ***Baeocera texana* Casey**

*Baeocera texana* CASEY, 1893: 520.

*Eubaeocera dybasi* CORNELL, 1967: 6. - **syn. nov.**

**Description.** Length 1.40 - 1.65 mm. Body black-brown to black. Antennomere 3 as long as 4, shorter than 2. Lateral contours of pronotum and of elytron forming two indistinct arcs in dorsal view (Fig. 45). Pronotal microsculpture distinct at 50x magnification. Tip of scutellum exposed. Elytron with complete, uninterrupted basal stria. Elytral punctation even and very fine, not or barely coarser than that of pronotum. Mesocoxal line moderately convex, with marginal pits coarse, weakly elongate, extended to tip of "mesepimeron" (Fig. 46). Lateral portion of metasternum very finely punctured. Metepisternum wide, with suture punctured, straight in posterior half, arcuate in anterior half. First abdominal ventrite lacking microsculpture, with elongate basal pits; in male with two fovea (Fig. 47). Aedeagus (Figs 129, 130) 0.76 - 0.83 mm long. Median lobe with large basal keel, apical portion about as long as basal bulb, apically bifid, with single dorsal valve. Ventral process small. Internal sac with oblique central sclerite joined with robust basal and narrower apical apophysis. Parameres wide, arcuate, curved apically, each bearing several very short and rather stout apical setae.

**Type material.** Female lectotype of *B. texana*, in the collection of the United States National Museum, Washington, D.C., is here designated. It bears following labels: 965126-8; Columbus Texas, 13.8; *texana*; Type USNM 48754; a vial with body parts; parts on slide; and the label Lectotype *Baeocera texana* Csy. det. K.Stephán 1990. For type data of *B. dybasi* see CORNELL, 1967: 6.

**Material examined.** 47 specimens: UNITED STATES: 13, Texas, Brazos Co., Koppe's Bridge, 5 mi SW College Sta., 6.IV.1987, R. Anderson; 2, Brazos Co., College Station, X.1974, J. S. Ashe; 1, Brazos Co., Peach Chat Hwy, 5 mi SW College Sta., 14. IV. 1987, R. Anderson and 1, same data, but 8 mi S College Sta.; 4, Texas, Llano Co., Enchanted Rock St. Pk., 20.V.1986, P. W. Kovarik; 1, Texas, Brownsville, V (no other data); 13, Brownsville, Sabal Palm Grove, 10.VIII. 1983, S. & J. Peck; 2, Texas, Bastrop Co., Bastrop State Park, 24-27. V.1983, S. & J. Peck; 2, Texas, Hidalgo Co., G. Wheeler; 6, Florida, Destin, I., II., III. 1976, E. J. Kiteley; 1, Florida, Ft. Walton Beach, II.1976, E.J.Kiteley; 1, Florida, Archer, 25.I.1979, E. C. Becker.

**Distribution.** Texas and northwestern Florida.

**Biology.** Specimens were collected in forest litter, leaf litter, and in a riparian ravine.

**Remarks.** See discussion under *B. laevis*.

### ***Baeocera laevis* (Reitter)**

*Scaphisoma laeve* REITTER, 1880: 47.

*Eubaeocera mitchelli* CORNELL, 1967: 15.

*Baeocera laevis*; LÖBL, 1987: 316.

**Description.** Length 1.4 - 1.5 mm. Body usually black, sometimes dark reddish-brown. Antennomere 3 about as long as 4, shorter than 2. Lateral

contours of pronotum and elytron continuously arcuate in dorsal view (Fig. 41). Pronotal microsculpture distinct at 50x magnification. Tip of scutellum exposed. Elytron with complete basal stria; very fine discal punctures of uniform size, larger than those on pronotum. Mesocoxal line weakly convex, with marginal pits moderately large, rounded, extended laterally to tip of "mesepimeron". Lateral portion of metasternum very finely punctured. Metepisternum wide, with suture impunctate, weakly arcuate in apical half (Fig. 42). First abdominal ventrite lacking microsculpture at 90x magnification, with basal pits non-elongate. Aedeagus (Figs 131 to 133) 0.64 - 0.70 mm long. Basal bulb large, somewhat longer than apical portion of median lobe, with small, inconspicuous ventral keel. Apical portion of median lobe asymmetrical, with curved and sinuate apicoventral arm covered by large dorsal valve. Ventral margin of apical portion strongly arcuate, with inclined, pointed tip in lateral view. Internal sac with two robust curved sclerites, pair of extruding lamellar vesicles and two apical lobes. Parameres wide, curved, each with tooth-like apophysis in center.

**Type material.** For *B. laevis* see LÖBL, 1987: 316; for *B. mitchelli* see CORNELL, 1967: 15.

**Material examined.** 483 specimens: UNITED STATES: 6, Alabama; 367, Florida; 1, Georgia; 2, Louisiana; 1, North Carolina; 1, South Carolina; 5, Mississippi; 2, Missouri; 13, New Jersey; 5, New York; 67, Oklahoma; 12, Texas; 1, West Virginia.

**Distribution.** This common species occurs from New Jersey south to Florida, west to Oklahoma and Texas. It is more numerous in the south.

**Biology.** The species inhabits a broad range of litter habitats. Specimens were taken from leaf litter, wood rat nest, river drift, base of rotten pine, palmetto gumbo-limbo litter, oak-cabbage palm litter, cypress litter, and dead tree. It was found throughout the year. The Florida specimens were found in flight intercept traps.

**Remarks.** *Baeocera laevis* may be confused with *B. texana* and *B. amacula*, which are sympatric in Texas and in south Florida, respectively. These three species are about of the same size, have a visible scutellum, and complete basal stria of the elytron. In *B. texana* the punctures along the mesocoxal line are coarse and elongate, and the body outline is weakly parallel-sided. In *B. amacula* and *B. laevis* the punctures along the mesocoxal line are round and small. The body is elongate-oval in *B. laevis* while in *B. amacula* it is more rounded. In addition, the metepisternal suture is moderately rounded in *B. amacula*, but almost straight in *B. laevis*.

### ***Baeocera amacula* sp.n.**

**Description.** Length 1.35 - 1.45 mm, width 0.87 - 0.98 mm. Body usually black. Antennomere 3 shorter than 2 or 4. Lateral contours of pronotum and of elytron separately arcuate in dorsal view (Fig. 39). Pronotum lacking microsculpture (90x magnification). Tip of scutellum exposed. Elytron with complete, uninterrupted basal stria. Elytral punctation even and very fine, somewhat more distinct than that of pronotum. Mesocoxal line parallel to coxa, with marginal pits rounded, moderately large, not extended laterally. Lateral portion of metasternum very finely punctured. Metepisternum wide, suture convexly rounded, impunctate



(Fig. 40). First abdominal ventrite not microsculptured (90x magnification), with basal pits not or barely elongate. Aedeagus (Figs 134, 135) 0.50 - 0.56 mm long. Median lobe with relatively slender basal bulb and long, very low keel. Ventral process well developed. Dorsal valves asymmetrical. Apical portion of median lobe thick, with ventral margin almost regularly concave in lateral view, dorsally deeply notched and gutter-like. Internal sac with flagellum, long and large sclerite curved basally, and with thinner ventral sclerites. Ejaculatory duct traceable from basal orifice to apex, apically extruded. Parameres slender, with strongly enlarged base, somewhat incurved and apically narrowed in lateral view, curved in apical half and not narrowed towards apex in dorsal view.

**Type material.** Holotype, male. UNITED STATES: Florida, Monroe Co., Sugarloaf Key, Kitchings, 29.VIII. - 14.XII.1986, S. & S. Peck (CNCI).

Paratypes, 87, all from Florida: 5, same data as holotype (MHNG); 1, same data as holotype, but 4. XI.1984 - 3.III.1985 (MHNG); 9, same but 26.II. - 6.VI.1986, S. & J. Peck, forest hammock, malaise & FIT (CNCI, KSC); 11, Fat Deer Key, 24.II. - 4.VI.1986, S. & J. Peck (MHNG) and 1, same but 4.III. - 28.IV.1985, hammock malaise - FIT (CNCI); 36, N. Key Largo, Sec. 35, 4.III. - 28.IV.1985, S. & J. Peck (MHNG); 8, Key Largo, Pennekamp St. Pk., 22. II. 2.VI.1986, S. & J. Peck (MHNG); 2, Big Pine Key, Watsons Hammock, 28. VIII. - 13. XII. 1986, S. & J. Peck (MHNG); 3, Big Pine Key, Cactus Hammock, 30.VII. - 1.VIII.1985, S. & J. Peck, hammock forest litter (CNCI); 2, Vaca Key, Marathon, 1.IX. 1986, S. & J. Peck (MHNG); 7, No Name Key, 23.II. - 3.VI.1986, S. & J. Peck, hammock malaise - FIT (CNCI); 2, Dade Co., Palma Vista Hammock, Everglades Nat. Pk., 18.IV.1965, W. Suter, forest floor litter, Palmetto-Gumbo-Limbo upland.

**Distribution.** *Baeocera amacula* is at present known only from Monroe and Dade Counties in extreme southern Florida, where it is sympatric with the similar *B. laevis*.

**Biology.** Most specimens were found in Malaise and flight intercept traps those from Vaca Key were taken in leaf litter.

**Remarks.** *Baeocera amacula* is likely to be confused with *B. laevis*. Males can be distinguished by the very different genitalia. In addition, the new species differs from *B. laevis* by the more rounded form of the body and by the curved metepisternal suture.

#### THE *elongata* GROUP

##### ***Baeocera elongata* sp.n.**

**Description.** Length 1.4 - 1.5 mm, width 0.83 - 0.90 mm. Body dark brown, elytra paler apically. Antennomere 3 as long as 4, shorter than 2. Lateral contours of pronotum and elytron separately arcuate in dorsal view (Fig. 48). Pronotal microsculpture barely visible at 90x magnification. Tip of scutellum exposed. Elytron with basal stria broadly interrupted in humeral area. Very fine elytral punctation near base, similar to that of pronotum, rather coarse on large central area (visible at 12x), fine near apex (visible at 24x). Mesocoxal line almost parallel to coxa, with marginal pits fine, round, not extended laterally. Lateral portion of metasternum very finely punctured. Metepisternum moderately wide, almost parallel-sided, with straight

impunctate suture. First abdominal ventrite lacking microsculpture (90x magnification), basal pits strongly elongate, forming grooves or striae laterally extending 1/3 upon segment (Fig. 49). Aedeagus (Figs 136, 137) 0.67 mm long. Median lobe with basal bulb about as long as thick, trifid, curved apical portion. Ventral process small. Valve single, distinct in lateral view. Internal sac strongly sclerotized, complex, ejaculatory duct not traceable. Parameres slender, except for enlarged base, bearing few apical setae; moderately sinuate in lateral view, curved in dorsal view.

**Type material.** Holotype, male, Arizona, Pima Co., Colossal Cave Park, 27.X.1971, D. S. Chandler, sifting rotten *Opuntia* (OSUC).

**Paratypes**, 17, UNITED STATES: Arizona: 5, Santa Cruz Co., Madera Cyn., 9 - 11.IX.1970, A. Newton (FMNH, KSC); 1, Santa Cruz Co., Madera Cyn., 20.XI.1971, D.S.Chandler (OSUC); 1, Santa Cruz Co., Las Guijas Mts., N Arivaca, 4000 ft, above old mining camp, 2.II.1965, J. Bequaert (UAIC); 2, Pima Co., Santa Catalina Mts., Molino Cyn., on Mt. Lemmon Hwy, 4100 ft, 25.XI.1971, D. S. Chandler (UAIC, MHNG); 1, Pima Co., Santa Catalina Mts., Bear Cyn. on Mt. Lemmon Hwy, 5600 ft, 3.X.1971, D. S. Chandler (UAIC); 4, Santa Catalina Mts., Molino Basin, 20.III.1964, J. C. Bequaert, (UAIC); 1, Pima Co., Tucson, Santa Catalina foothills, 2.VIII.1962, W. L. Nutting & P. Mehringer (UAIC); 1, Texas, El Paso, 28.VII.1914, J. C. Bradley (CUIC); 1, Portal, 26.VI.1956, H. & A. Howden (CNCI); 1 mi E Portal, 28.VI.1956, H. & A. Howden (CMNC).

**Distribution.** Most specimens were found in the mountains of southeastern Arizona.

**Biology.** *Baeocera elongata* is an inhabitant of the oak-zone. Specimens were taken in oak and sycamore duff, and three times found in wood rat nests. Adult were found in February, March, and July to November.

**Remarks.** The El Paso specimen is a female. As it exhibits all diagnostic features of the Arizona specimens, it is considered to be conspecific.

### ***Baeocera hamata* sp.n.**

**Description.** Length 1.75 mm, width 1.25 mm. Head, pronotum and basal portion of elytra blackish, elytra gradually paler apically. Antennomere 3 as long as 4, shorter than 2. Lateral contours of pronotum and elytron separately arcuate in dorsal view (Fig. 56). Pronotal microsculpture hardly visible at 50x magnification, punctation distinct at 24 x magnification. Exposed portion of scutellum large. Elytron with basal stria broadly interrupted, not extended beyond middle of elytral base. Punctation very fine on basal fifth to fourth and on inclined lateral portion. Central portion of elytron with coarse and dense punctation (many punctures about as large as intervals); punctation toward apical margin and near sutural stria finer than that on center. Mesocoxal line parallel to coxa, marginal pits rounded and not extended laterally. Lateral portion of metasternum very finely punctured. Metepisternum parallel-sided except near angles, with straight, punctured suture. First abdominal ventrite with microsculpture hardly visible at 90x magnification, basal pits elongate, extended by striae. Apical margin of sixth ventrite bisinuate, with median lobe short, pointed. Aedeagus (Figs 138, 139) 0.72 mm long. Median lobe asymmetrical, with basal bulb fairly large, longer than trifid apical portion. Ventral process small, protruding. Apical portion of median lobe gradually narrowed toward strongly curved

tip. Dorsal valves narrow, strongly sclerotized, apically curved and pointed. Internal sac bearing large sclerotized pieces. Dorsal pair of sclerites overlapping apically, joined basally. Parameres symmetrical, wide and moderately arcuate in dorsal view, slender and weakly curved in lateral view; setae absent.

**Type material.** Holotype, male: UNITED STATES: Texas, Welder Wildlife Refuge, 17 km NE Sinton, 17-25.V.1985, H. & A. Howden, C.Scholtz. Malaise trap (CMNC).

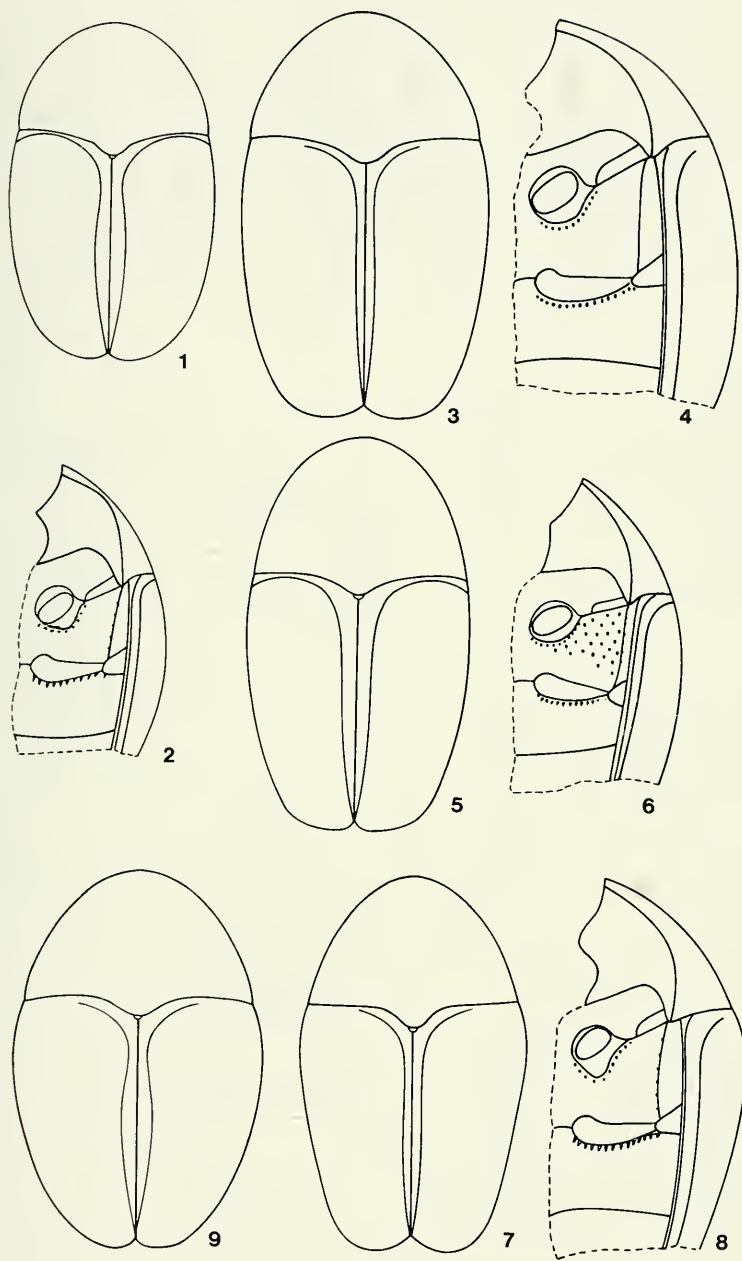
**Distribution.** Texas.

**Remarks.** This species may be readily distinguished from other Nearctic *Baeocera* by the elytral punctation in combination with the interrupted basal stria and the size of the body.

#### ACKNOWLEDGEMENTS

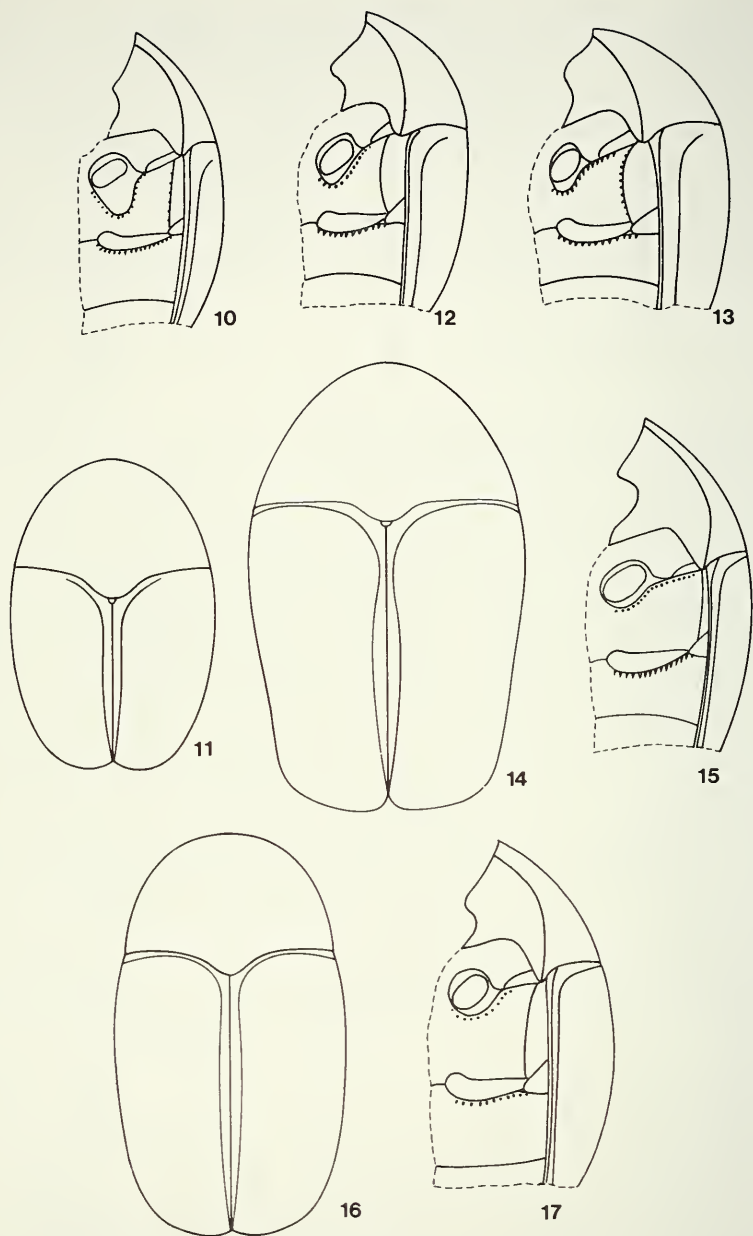
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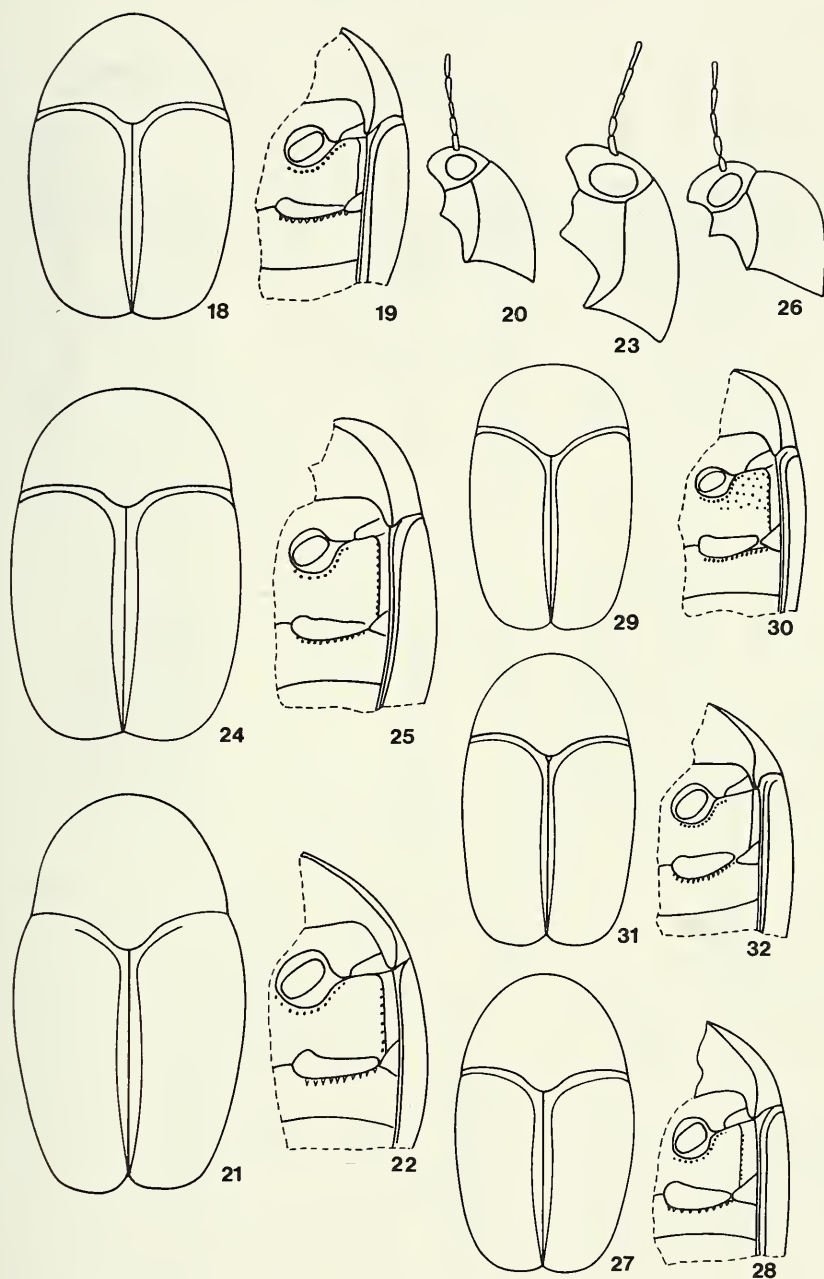
FIGS 1-9

*Baeocera* in dorsal and lateral view; 1 and 2. *B. eurydice* (Cornell); 3 and 4. *B. pallida* Casey; 5 and 6. *B. sticta* sp.n.; 7 and 8. *B. picea* Casey; 9. *B. hesperia* sp.n.



FIGS 10-17

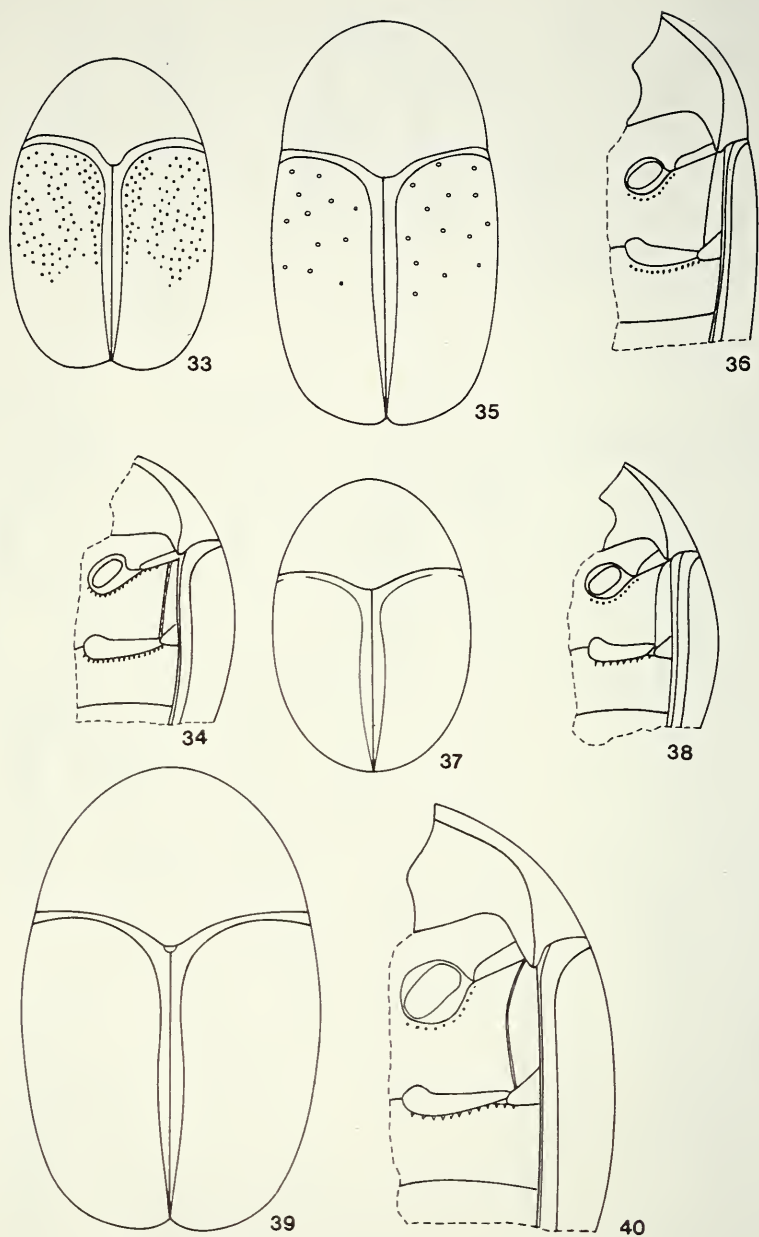
*Baeocera* in dorsal and lateral view; 10. *B. hesperia* sp.n.; 11 to 13. *B. nana* Casey; 14 and 15. *B. humeralis* Fall.; 16 and 17. *B. apicalis* Casey.



FIGS 18-32

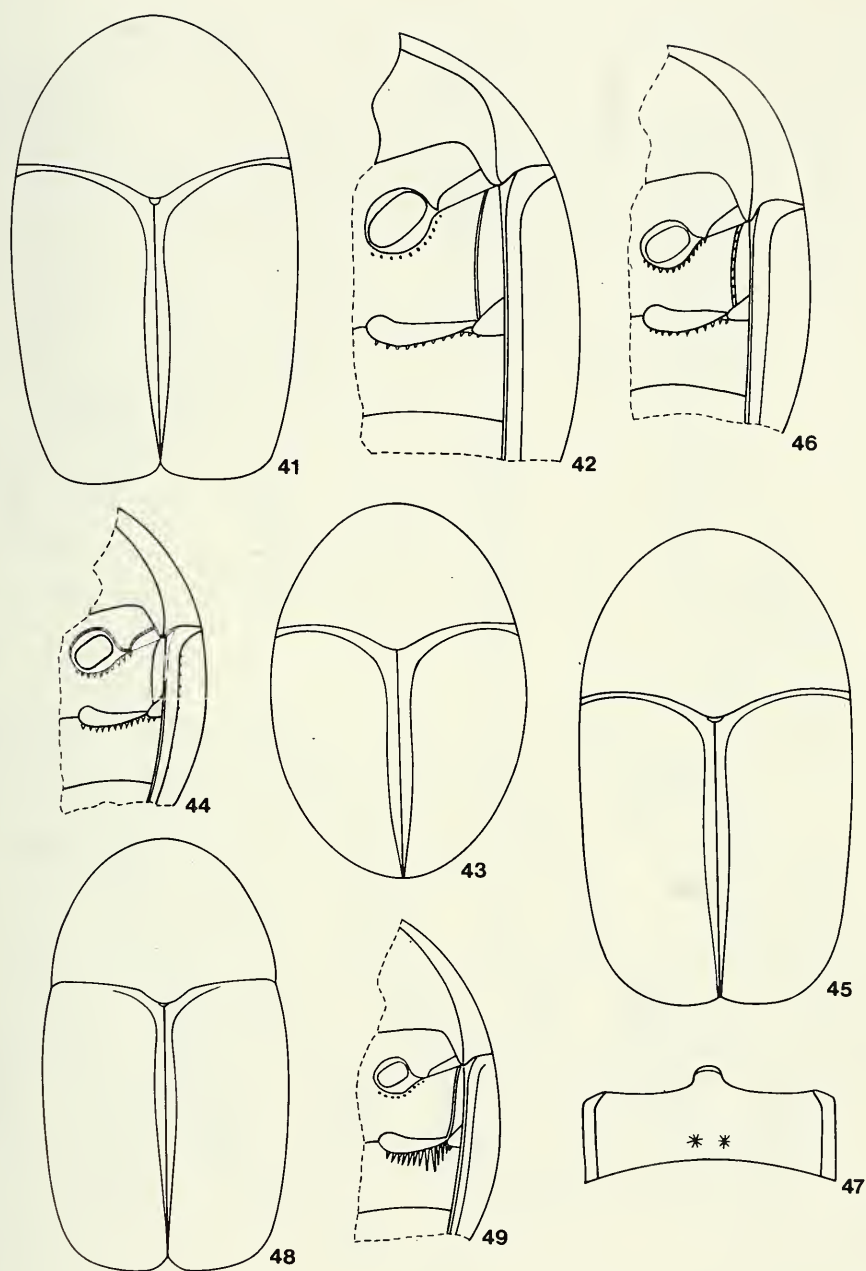
*Baeocera* in dorsal and lateral view; 18 to 20. *B. congener* Casey; 21 to 23. *B. deflexa* Casey; 24 to 26. *B. falsata* Achard; 27 and 28. *B. flagellata* (Löbl); 29 to 30. *B. solida* sp.n.; 31 and 32. *B. valida* (Löbl).





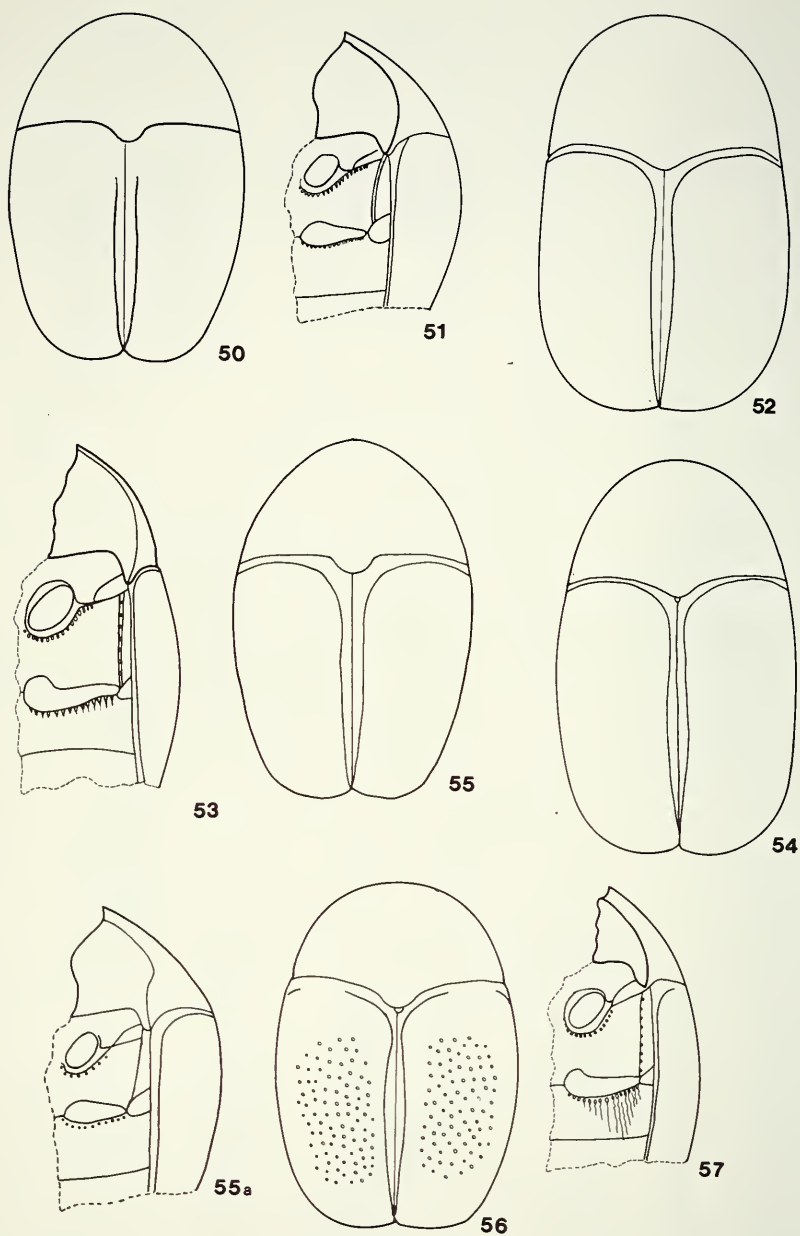
FIGS 33-40

*Baeocera* in dorsal and lateral view. 33 and 34. *B. irregularis* Champion; 35 and 36. *B. chisosa* sp.n.. 37 and 38. *B. abdominalis* Casey; 39 and 40. *B. amicula* sp.n.



FIGS 41-49

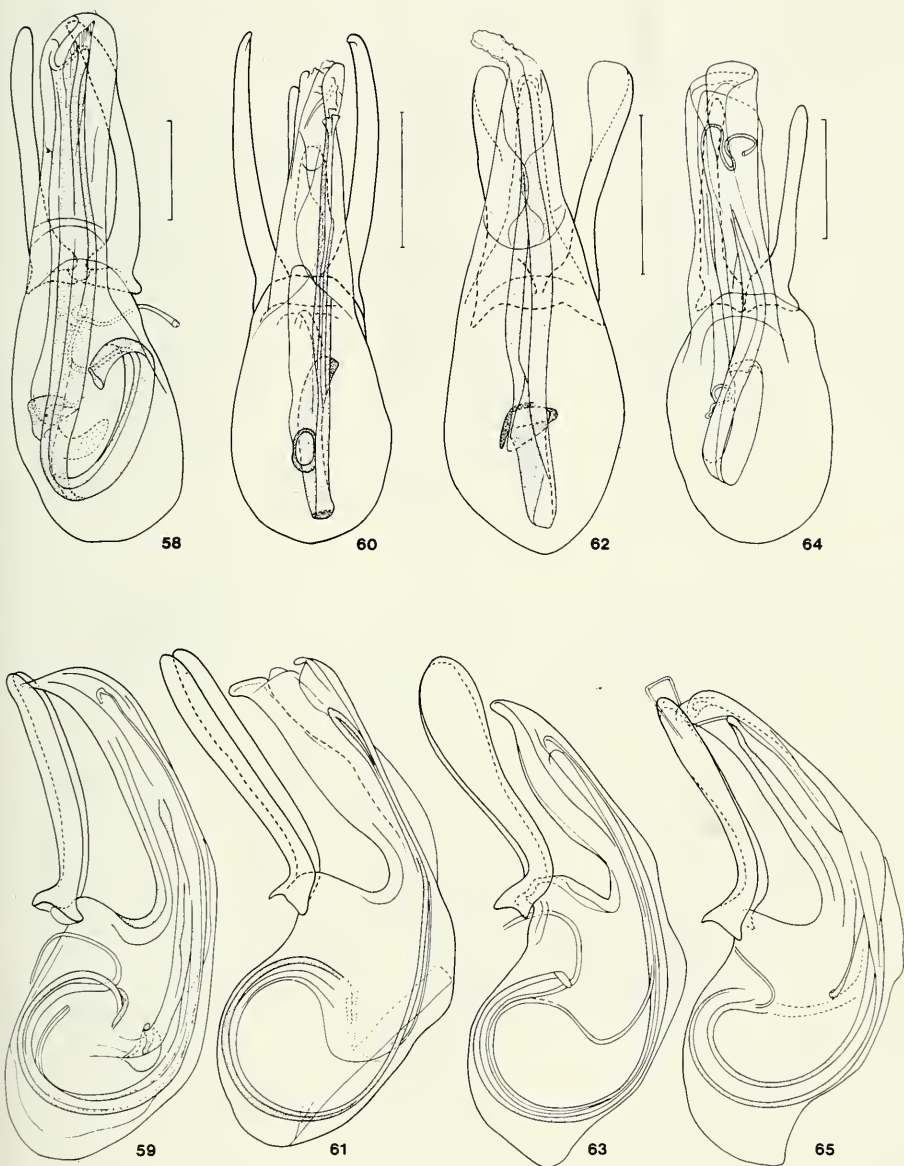
*Baeocera* in dorsal and lateral view; 41 and 42. *B. laevis* (Reitter); 43 and 44. *B. robustula* Casey; 45 to 47. *B. texana* Casey (47. first visible ventrite in male); 48 to 49. *B. elongata* sp.n.



FIGS 50-57

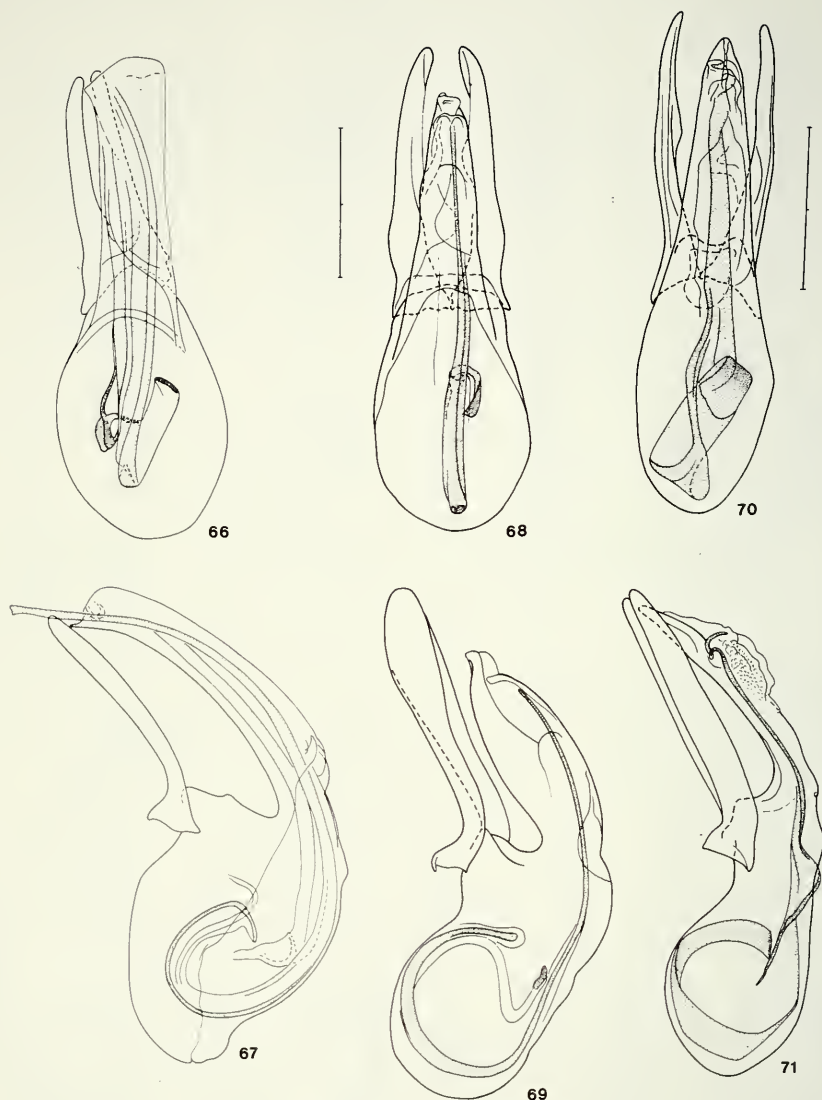
*Baeocera* in dorsal and lateral view; 50 and 51. *B. pecki* sp.n.; 52 and 53. *B. lenczyi* sp.n.; 54. *B. impunctata* sp.n.; 55 and 55a. *B. compacta* sp.n.; 56 and 57. *B. hamata* sp.n.





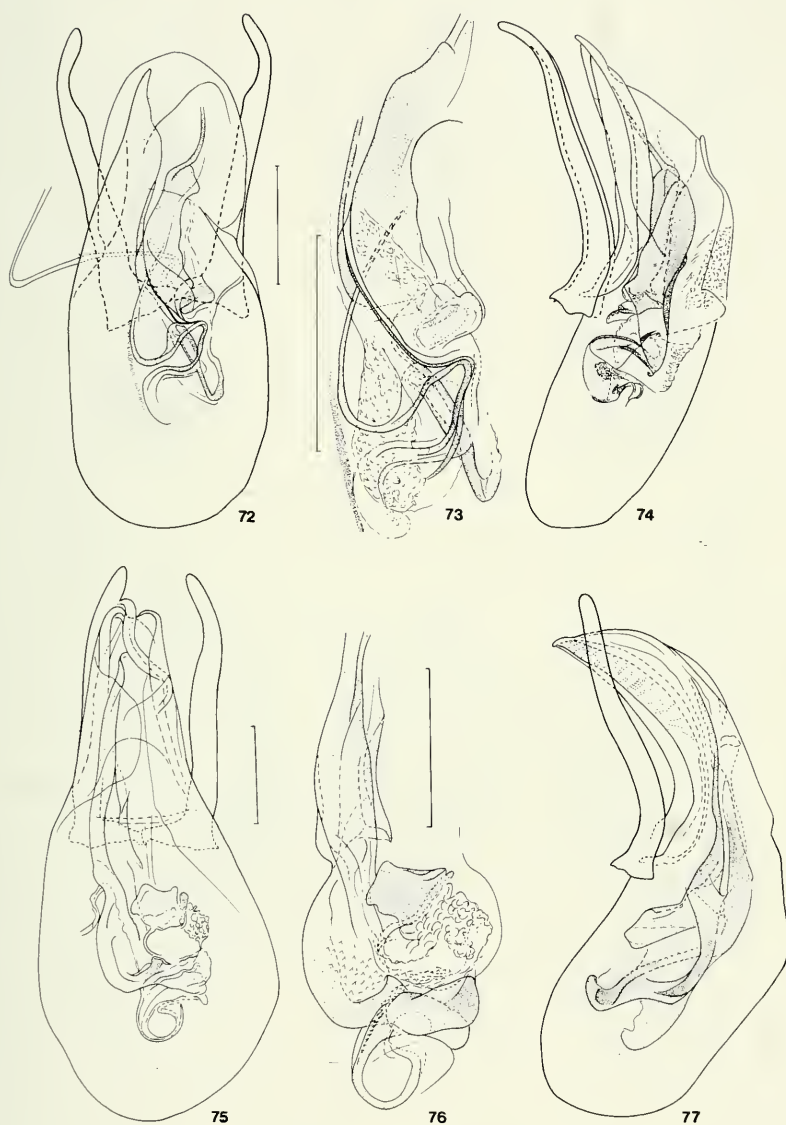
FIGS 58-65

Aedeagi of *Baeocera* in dorsal and lateral view; 58 and 59. *B. apicalis* Casey; 60 and 61. *B. pallida* Casey; 62 and 63. *B. eurydice* (Cornell); 64 and 65. *B. sticta* sp.n. Scale bar = 0.1 mm.



FIGS 66-71

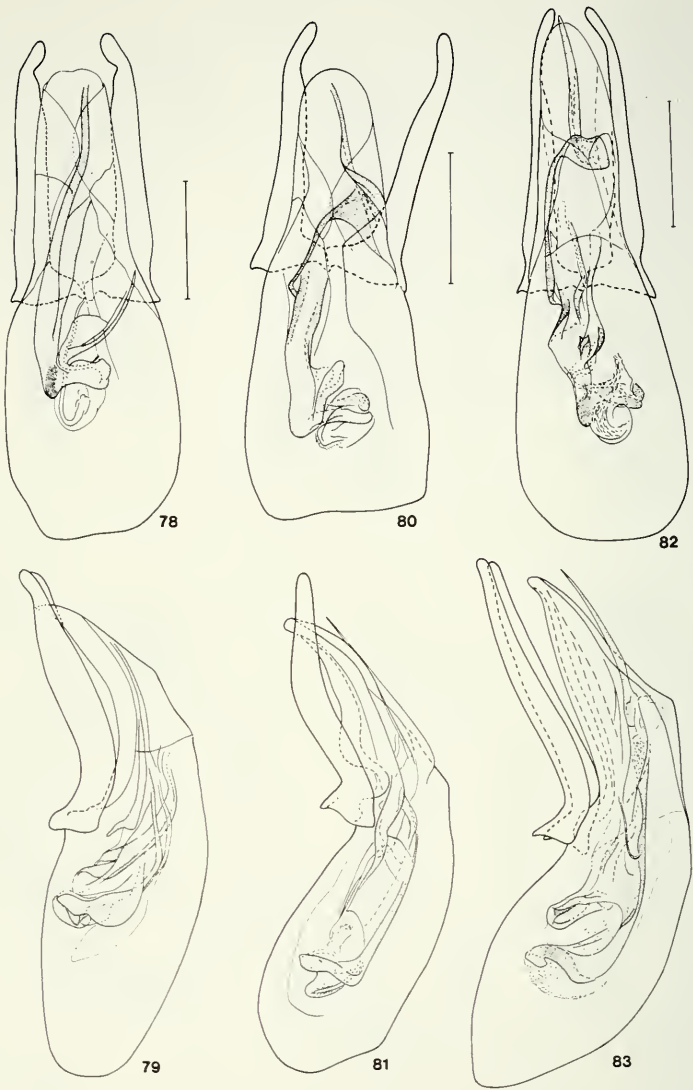
Aedeagi of *Baeocera* in dorsal and lateral view; 66 and 67. *B. chisosa* sp.n.; 68 and 69. *B. obesa* sp.n.; 70 and 71. *B. pecki* sp.n. Scale bar = 0.2 mm.



FIGS 72-77

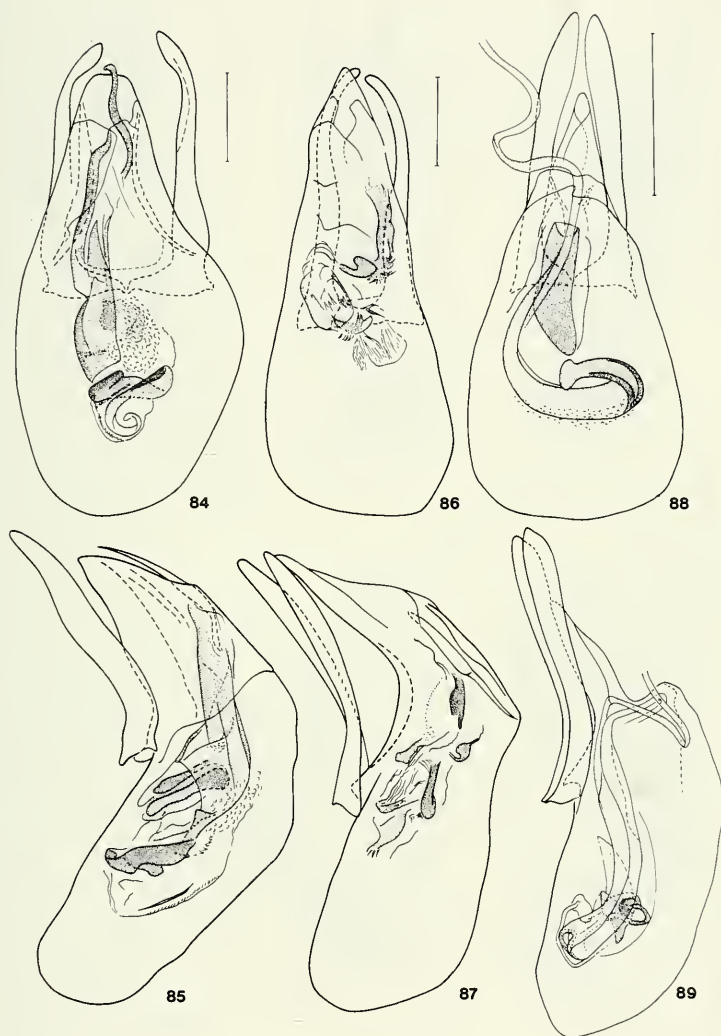
Aedeagi of *Baeocera* in dorsal and lateral view; 72 to 74, *B. picea* Casey; 75 to 77, *B. charybda* (Cornell); 73 and 76, internal sac in detail. Scale bar = 0.1 mm.





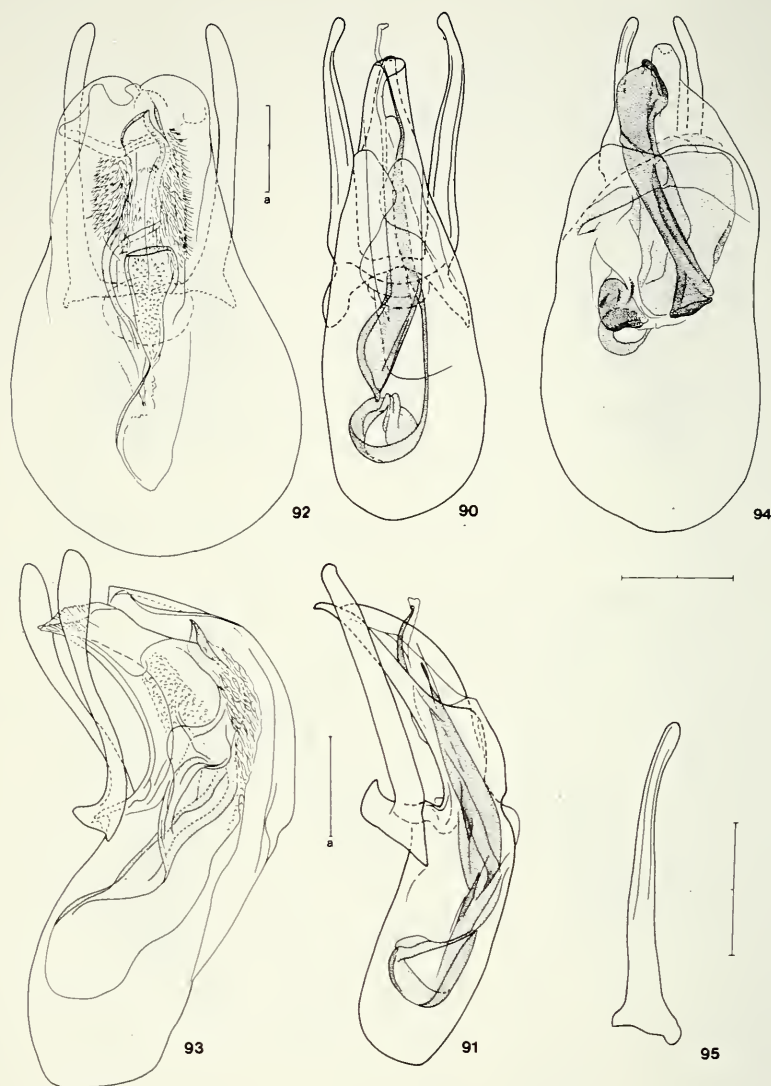
FIGS 78-83

Aedeagi of *Baeocera* in dorsal and lateral view; 78 and 79, *B. scylla* (Cornell); 80 and 81, *B. similaris* sp.n.; 82 and 83, *B. indistincta* sp.n. Scale bar = 0.1 mm.



FIGS 84-89

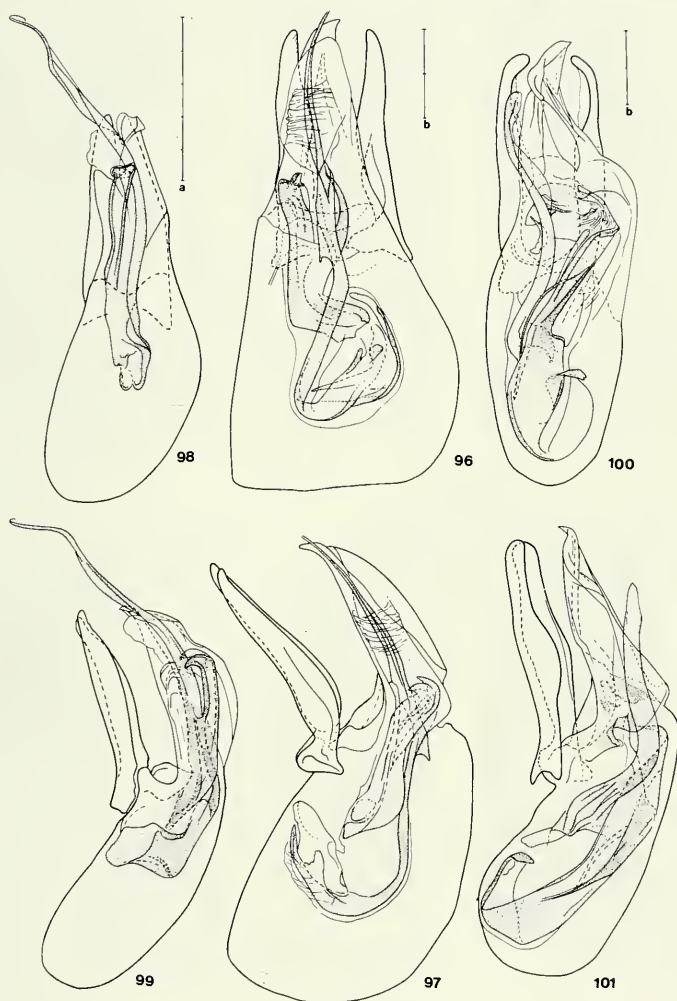
Aedeagi of *Baeocera* in dorsal and lateral view; 84 and 85. *B. borealis* sp.n.; 86 and 87. *B. hesperia* sp.n.; 88 and 89. *B. nana* Casey. Scale bar = 0.1 mm.



FIGS 90-95

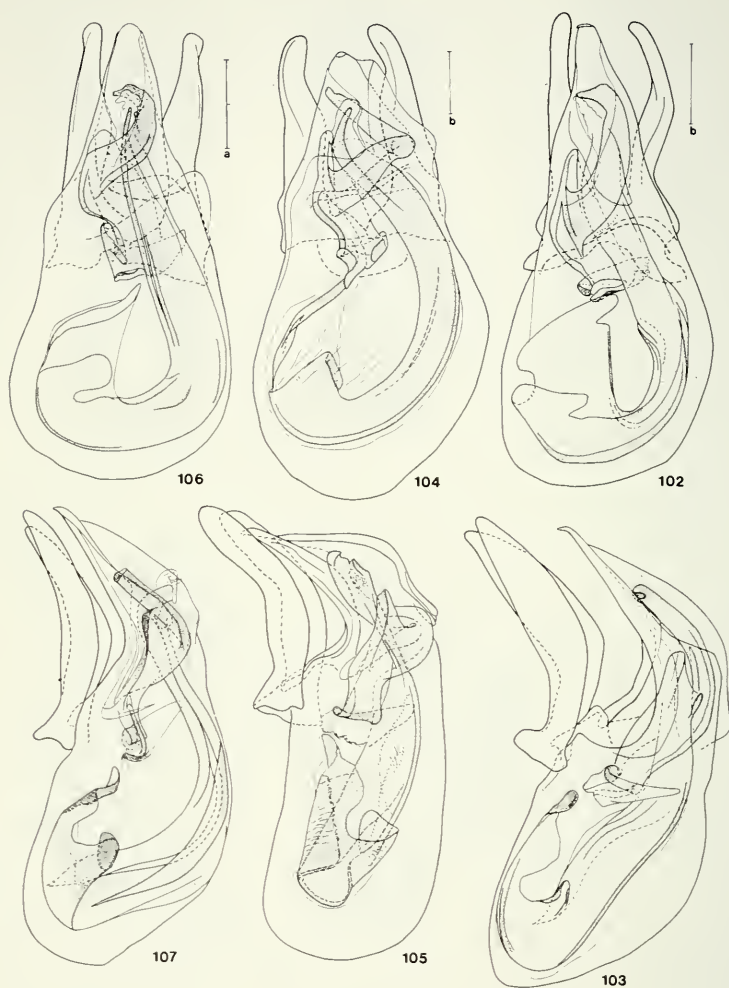
Aedeagi of *Baeocera* in dorsal and lateral view; 90 and 91. *B. compacta* sp.n.; 92 and 93. *B. humeralis* Fall; 94 and 95. *B. irregularis* Champion, paramere (95) in ventral view. Scale bar a = 0.1 mm, b = 0.2 mm.





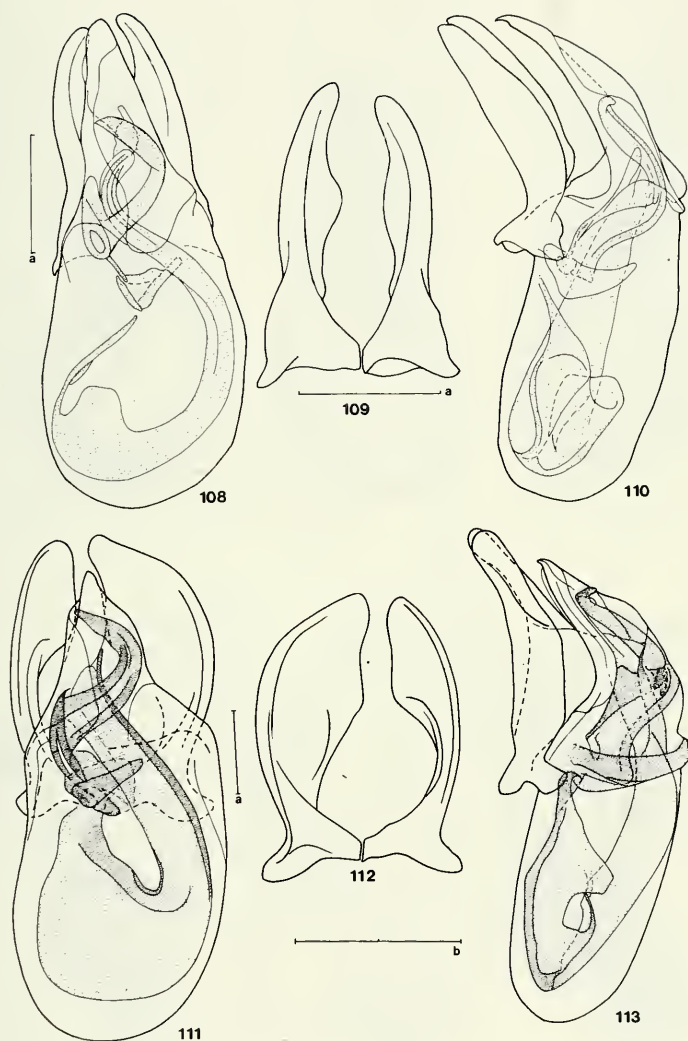
FIGS 96-101

Aedeagi of *Baeocera* in dorsal and ventral view; 96 and 97. *B. deflexa* Casey; 98 and 99. *B. flagellata* (Löbl); 100 and 101. *B. valida* (Löbl). Scale bar a = 0.5 mm, b = 0.2 mm.



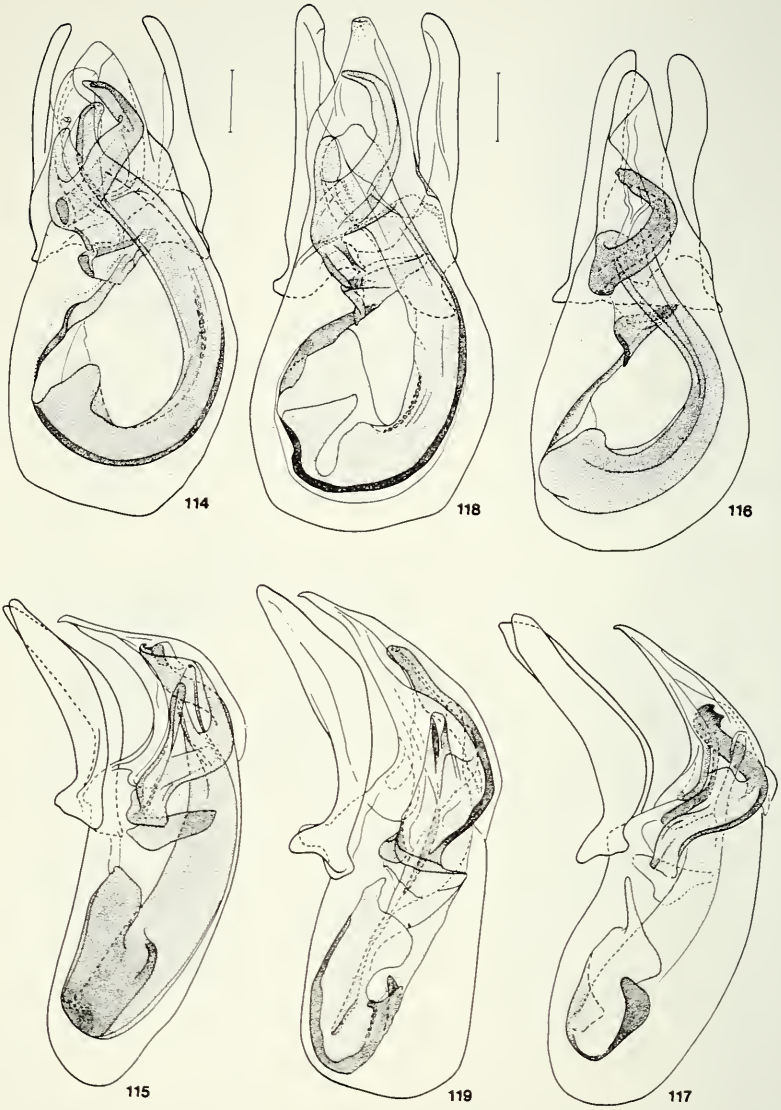
FIGS 102-107

Aedeagi of *Baecera* in dorsal and lateral view; 102 and 103. *B. cerbera* (Cornell); 104 and 105. *B. congener* Casey; 106 and 107. *B. falsata* Achard. Scale bar a = 0.2 mm, b = 0.1 mm.



FIGS 108-113

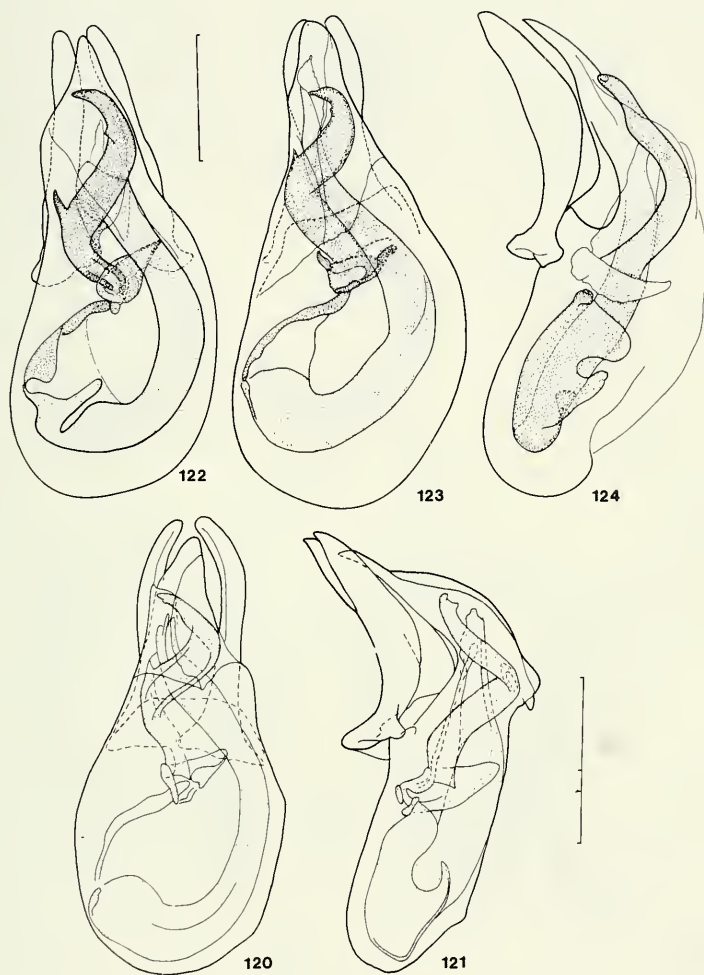
Aedeagi of *Baeocera* in dorsal and lateral view; 108 to 110. *B. inexpectata* sp.n.; 111 to 113. *B. lenczyi* sp.n. Scale bar a = 0.1 mm, b = 0.2 mm.



FIGS 114-119

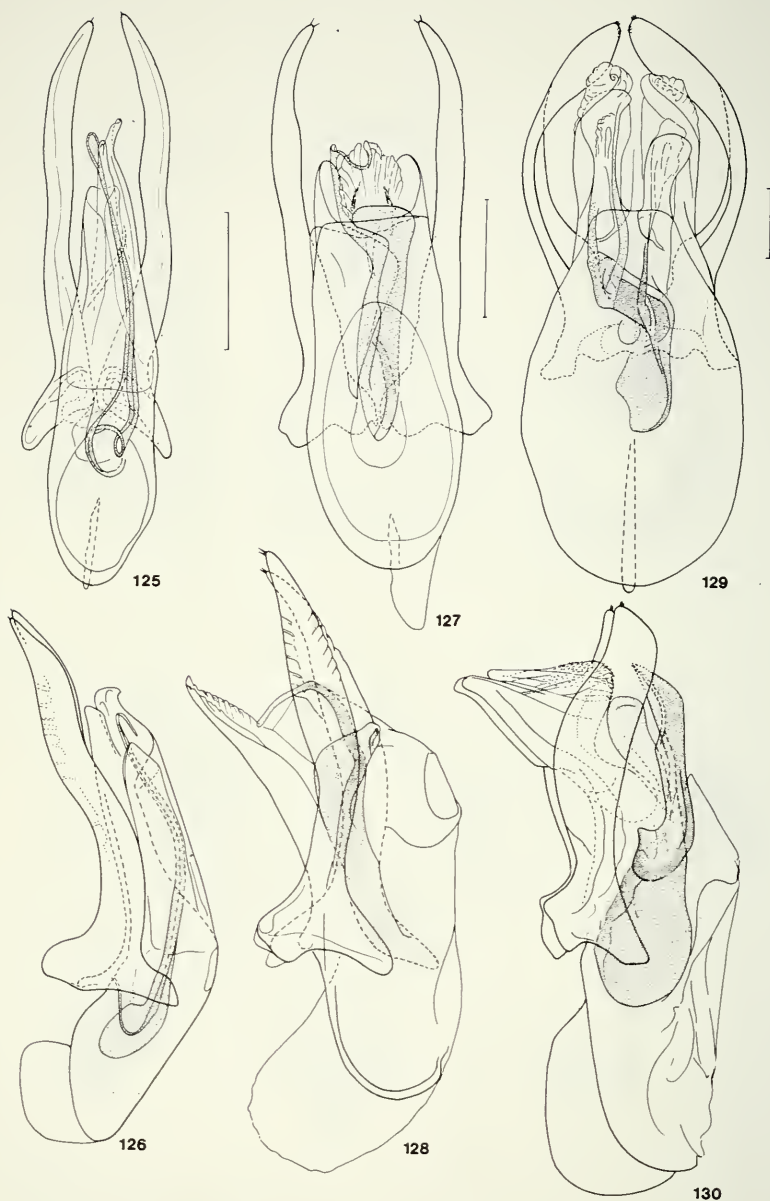
Aedeagi of *Baeocera* in dorsal and lateral view; 114 and 115. *B. impunctata* sp.n.; 116 and 117. *B. securiforma* (Cornell); 118 and 119. *B. solida* sp.n. Scale bar = 0.1 mm.





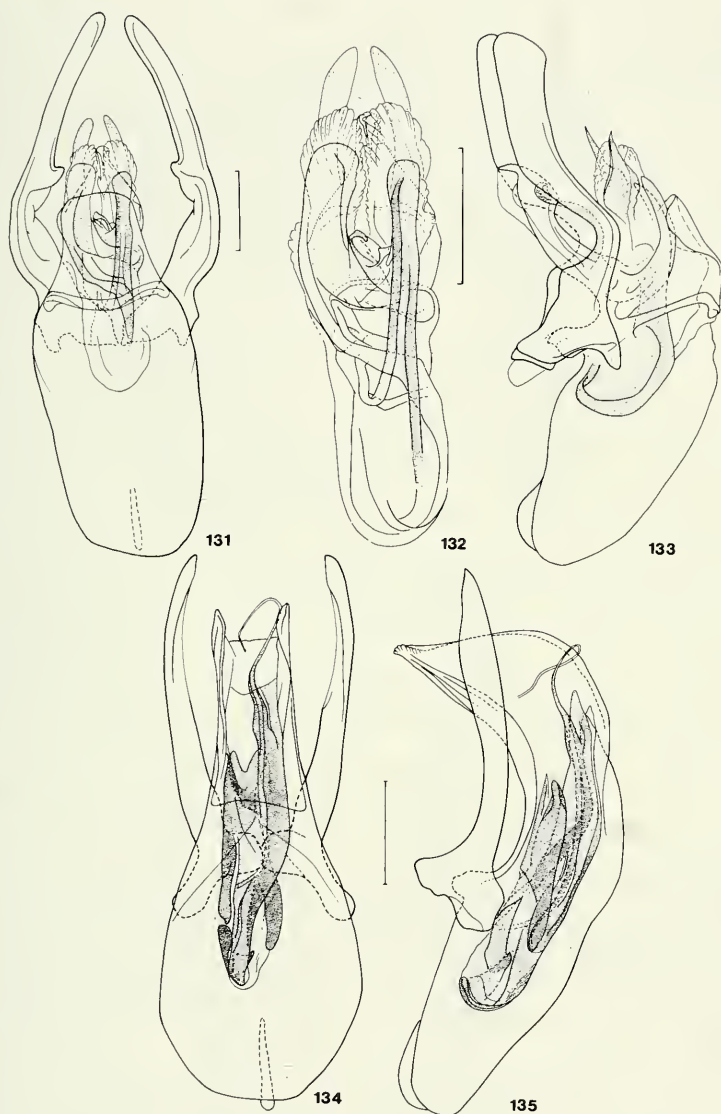
FIGS 120-124

Aedeagi of *Baeocera* in dorsal and lateral view; 120 and 121. *B. speculifer* Casey; 122 to 124. *B. youngi* (Cornell). Scale bar = 0.1 mm.



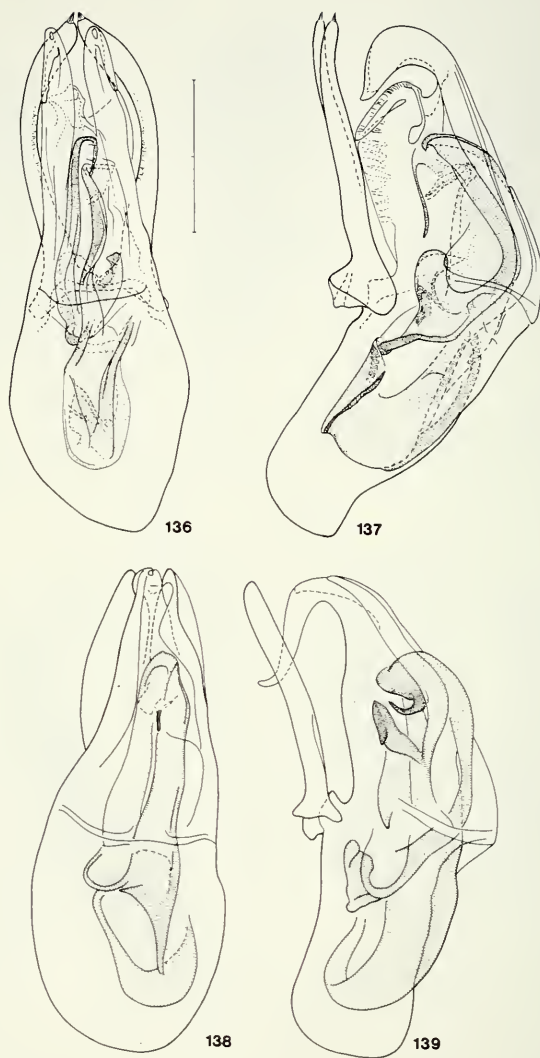
FIGS 125-130

Aedeagi of *Baeocera* in dorsal and lateral view; 125 and 126. *B. abdominalis* Casey; 127 and 128. *B. robustula* Casey; 129 and 130. *B. texana* Casey. Scale bar = 0.1 mm.



FIGS 131-135

Aedeagi of *Baeocera* in dorsal and lateral view; 131 to 133. *B. laevis* (Reitter), 132. internal sac in detail; 134 and 135. *B. amacula* sp.n. Scale bar = 0.1 mm.



FIGS 136-139

Aedeagi of *Baeocera* in dorsal and lateral view, 136 and 137. *B. elongata* sp.n.; 138 and 139. *B. hamata* sp.n. Scale bar = 0.2 mm.



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